



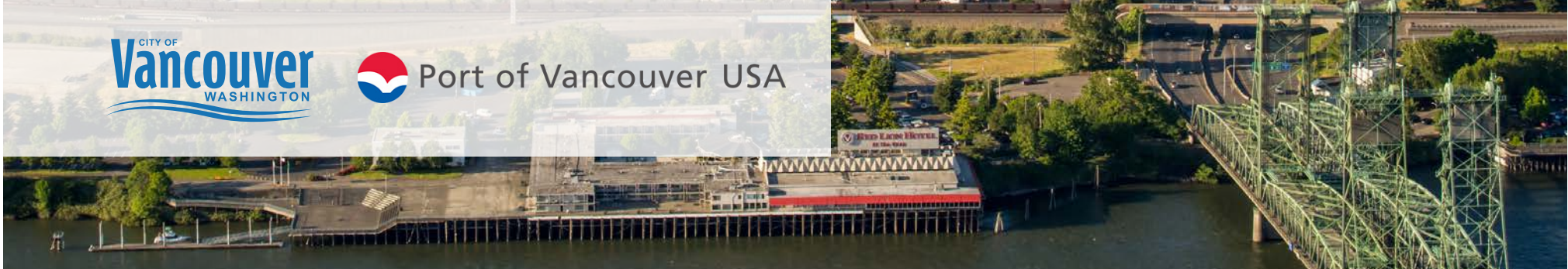
WESTSIDE MOBILITY STRATEGY

Final Report

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Port of Vancouver USA



ACKNOWLEDGMENTS

Vancouver City Council

Timothy D. Leavitt, Mayor

Jack Burkman

Bart Hansen

Bill Turlay

Anne McEnery-Ogle

Alishia Topper

Ty Stober

Project Team

City of Vancouver

Chad Eiken

Teresa Brum

Sandra Towne

Patrick Sweeney, Project Manager

Jamin Kimmell

Jennifer Campos

Hassan Abdalla

Bill Whitcomb

Ryan Lapossa

Loretta Callahan

Chris Christofferson

Port of Vancouver

James Hagar

Katy Brooks

Southwest Washington Regional Transportation Council

Lynda David

Mark Harrington

Shinwon Kim

WSDOT

Michael Williams

Clark County

Matt Hermen

HDR, Inc.

Andrew Johnson

Miranda Wells, P.E.

Leland Consulting Group

Brian Vanneman

TABLE OF CONTENTS

Context and process

Project purpose and scope	1
History and context	1
Relationship to existing plans and projects	4
Planning process	6

Findings and implications

Existing conditions	9
Future projections and scenario modeling	15
Community feedback	17

Balanced mobility concept

Mobility goals and recommendations

Create a Systematic Plan to Increase Safety	22
Manage Arterials to Preserve Neighborhood Livability	23
Develop Efficient and Reliable Freight Routes	26
Retrofit Main Street to Promote Vitality and Safety	28
Complete Key Connections in the Bikeway Network	30
Make Walking Safe and Convenient for All	32
Build Partnerships for Regional Projects	35
Monitor Performance of Streets	36

Action plan

Project funding and costs	37
Short-term implementation opportunities	38
Project detail tables	39
Project priorities and timing	50

LIST OF FIGURES AND TABLES

Figures

1	Project study area	1
2	Planning process diagram	6
3	Motor vehicle and freight traffic volumes, March 2015	9
4	24-hour traffic volumes, selected arterials, March 2015	10
5	Conceptual map of I-5 diversion traffic	10
6	Existing marked pedestrian crossings	12
7	Types of transportation cyclists by share of population	13
8	Bikeway network gaps	13
9	Sidewalk network gaps	14
10	Collision rates, selected arterials, 2010-2014	14
11	Collision severity by mode, 2010-2014	14
12	Volume-to-capacity designations, 2035 projections	15
13	Traffic volume shifts compared to base 2035 projections	16
14	Community values	18
15	Mobility concept	20
16	Collisions by severity, 2010-2014	22
17	Raised crosswalk concept for 39th St.	24
18	Enhanced pedestrian crossing concept for Fourth Plain	25
19	Components of 32nd Ave. extension project	27
20	Four zones of a complete downtown sidewalk	28
21	Potential collision points, four-lane vs three-lane configuration	29
22	Cycle track concept	30
23	Proposed bikeway network connections	31
24	Proposed enhanced pedestrian crossings	33

Tables

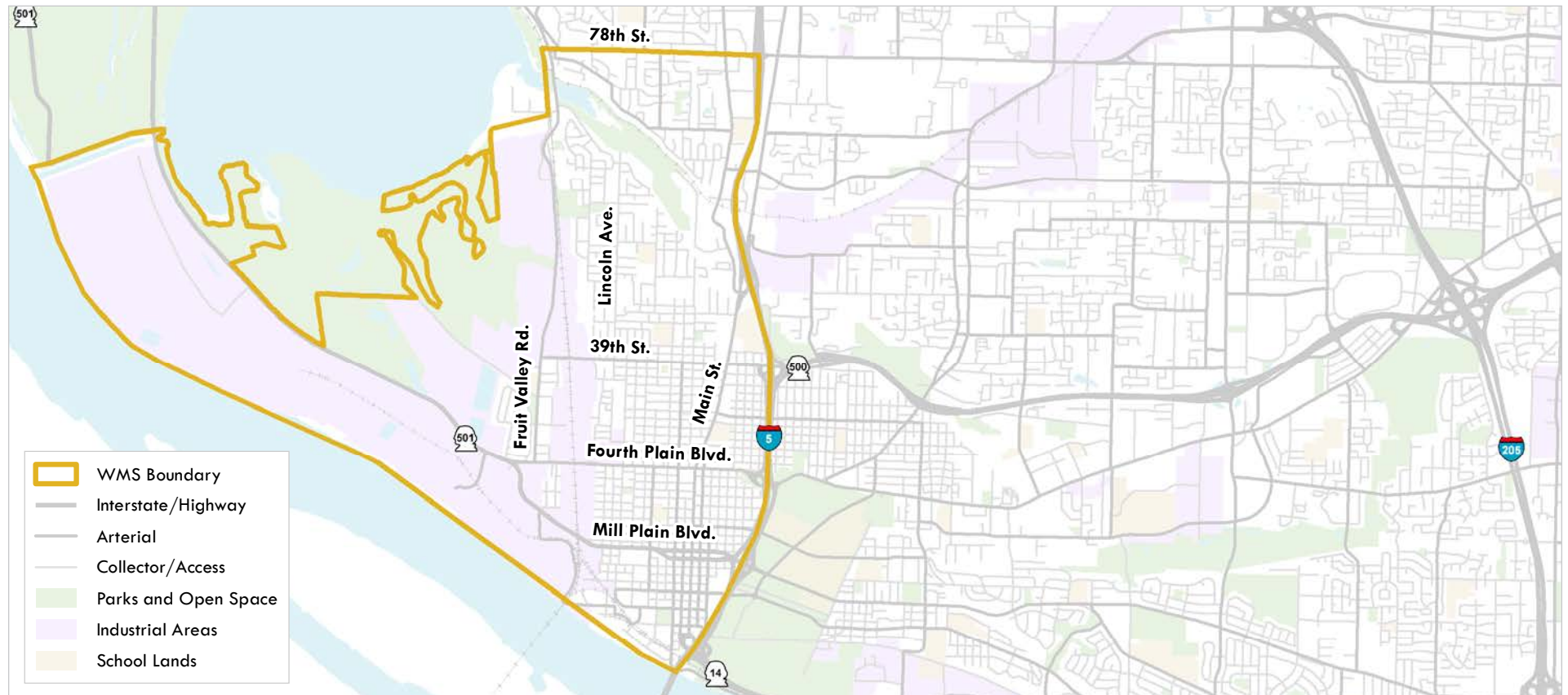
1	Major completed projects included in WMS analysis	4
2	Selected projects incorporated into WMS recommendations	5
3	Community engagement methods	8
4	Short-term implementation opportunities	38
5	Project priorities and timing	50

CONTEXT AND PROCESS

Project purpose and scope

The Westside Mobility Strategy (WMS) is a study and planning initiative to identify strategies for improving the transportation network in the neighborhoods, industrial areas, and mixed-use centers on Vancouver's westside. The study area is bounded by Interstate 5 to the east, the city limits to the west, the Columbia River to the south, and 78th Street to the north (Figure 1). The strategy is the result of close partnership between the City of Vancouver (City), Port of Vancouver, Clark County, WSDOT, and the Southwest Washington Regional Transportation Council.

Figure 1. Project study area



History and context

Unlike many of Vancouver's neighborhoods to the east, westside neighborhoods developed in an era when most people did not use the automobile as a primary mode of transportation. Mobility was largely limited to walking, horseback, bicycling and streetcar, and the original street network was designed to accommodate these modes. The grid pattern of streets enabled the most direct route regardless of origin and destination, a necessity when moving at a low speed. Many neighborhood streets were relatively narrow as capacity for automobiles was unnecessary. Commercial areas, schools and parks were planned to be within a short distance of most homes.



Mature trees and quiet streets make westside neighborhoods desirable places to live

Over time, the westside street network was slowly reconfigured to focus on improving vehicular mobility. Some streets were widened to handle more vehicles and connected to Interstate 5 and growing industrial job centers in and around the Port of Vancouver. Newer neighborhoods north of 39th Street departed from the grid street pattern and did not always construct sidewalks. Regional traffic—including freight—began using the westside street network to access jobs and move goods, supporting local economic growth and vitality.

Today, this development pattern, organized by the interconnected street grid, presents both opportunities and challenges. Westside Vancouver neighborhoods continue to be some of Vancouver’s most popular, most walkable and most bike-friendly places in southwest Washington. New residents are increasingly well-educated, have disposable income, and are electing to invest in both home ownership and apartment living. Businesses are following these new residents, contributing to the vitality of the Uptown Village and downtown commercial districts. Continued housing and job growth will allow more people to live and work on the westside and create more local, family wage jobs.

Regional population is up 6 percent and jobs have grown by 4 percent since 2011, growth creating a 6 percent increase in traffic volume.¹ This

¹ Southwest Washington RTC, Congestion Management Process 2015 Summary Report



Both multi-family housing and industry are expected to grow across the westside

growth has outpaced the capacity of Interstate 5 and the Columbia River bridges to handle traffic demands, however, causing traffic to divert from I-5 onto the grid of local westside streets. As more jobs and more residents continue to add pressure to the network, demographic shifts are driving demand for streets that are as safe and convenient for walking and biking as for driving. Industrial growth at the Port of Vancouver and in industrial areas near Fruit Valley Road mean the network will need to handle additional freight traffic.

The street network, as well as the individual roles of each arterial street, needs to be strategically managed to balance all modes and directions of travel in order to respond to these trends and preserve a livable, safe and prosperous community. The Westside Mobility Strategy establishes a framework and set of actions to guide this process.

Planning for freight on Vancouver’s westside

Industry has existed in western Vancouver since the late 1800’s, primarily along the Columbia River. The Port of Vancouver was established in 1912 and industrial land uses, especially ship building, increased during World War I. In the 1930’s, the Port began exporting grain. World War II ushered the need for more ship building capacity and industry expanded into the prune orchards west of downtown. In the 1940’s, the

federal government built housing to support the booming shipbuilding industry. Much of this housing stock remains today in the Fruit Valley neighborhood.

Mill Plain Boulevard

Years later, in March 1996, state funding provided for the Mill Plain Extension project, an effort that would have a major impact on the Port area. Upon completion in 2000, the project relieved major truck congestion on Fourth Plain Boulevard, and significantly improved freight movement between the Port and Interstate 5. With these improvements to Mill Plain Boulevard, the City of Vancouver and the state of Washington executed a “jurisdictional transfer,” which meant that Mill Plain Boulevard became State Route 501 and Fourth Plain Boulevard became a City-owned street.

Fourth Plain Boulevard

With the City in control of Fourth Plain, and in response to years of complaints from neighbors about the heavy traffic on Fourth Plain Boulevard, City planners and engineers worked with local community members to reduce the neighborhood impacts of truck and commuter traffic. In 2002, Fourth Plain was reconfigured from a four lane roadway to a two-lane roadway with a center turn lane and bike lanes. This change was part of a Community Accord that established performance measures and an evaluation process to be used for the implementation of the project, to ensure it met the needs of both industrial users and neighborhood residents. The majority of east-west freight traffic shifted to Mill Plain Boulevard, and Fourth Plain Boulevard became the secondary freight route between I-5 and industrial land uses.

39th Street

North of Fourth Plain Boulevard is 39th Street, designated a collector arterial. Historically, 39th Street provided east-west access from Hwy 99 to westside industrial land uses, passing through single-family residential neighborhoods before it crossed the BNSF railroad tracks and intersected with Fruit Valley Road. The busy BNSF railroad crossing at 39th Street

was an at-grade crossing of five parallel sets of railroad tracks. Crossing gates blocked the street when trains passed and frequently blocked east-west traffic. In 2010, the State of Washington funded the construction of the 39th Street Bridge over the BNSF railroad tracks, relieving the traffic tie-ups caused by train activity and improving north-south freight rail mobility. In 2011, the city implemented a traffic-calming project on 39th Street in an attempt to mitigate the impact of an anticipated increase in freight and commuter traffic following the reconstruction of the railroad bridge.

78th St.

78th Street is a principal arterial roadway in Clark County. Historically, 78th Street has been a major connection between old Highway 99 and Lakeshore Avenue and supported 2 lanes of traffic in each direction with a dedicated center-turn lane. In the late 1990’s improvements to 78th Street from Hazel Dell to Lakeshore included sidewalks, curb ramps, and stormwater/catch basins. More recently, 78th Street from Hazel Dell to Highway 99 including the I-5/78th Street interchange was improved in 2001.

In summary, Mill Plain Boulevard, Fourth Plain Boulevard, 39th Street and 78th Street are all directly connected to I-5 with highway interchanges and provide convenient east-west access from I-5 through Vancouver neighborhoods to the Port of Vancouver and western industrial areas. From the perspective of neighborhood residents who live on these streets, the truck and commuter traffic impacts can be a burden. From the perspective of the truck drivers, these roads are designated as arterials and have direct connections to I-5, making them ideal choices for east-west freight travel.

Relationship to existing plans and projects

The project team reviewed planning documents with relevance to the current and future conditions of westside neighborhoods. These documents informed the development of the scope of work and influenced the project recommendations. They include:

- Vancouver Comprehensive Plan
- City of Vancouver Transportation Improvement Program
- Vancouver Central City Vision and Environmental Impact Study
- Fruit Valley Sub Area Plan
- Clark County Freight Mobility Study
- Fourth Plain Accord
- Southwest Washington Regional Transportation Plan
- Southwest Washington Regional Transportation Council, Congestion Management Process 2015 Summary Report
- Columbia River Crossing Final Environmental Impact Study

The Westside Mobility Strategy (WMS) builds primarily on the work of the Vancouver Transportation System Plan (TSP) and the Vancouver City Center Vision (VCCV). The TSP, adopted in 2004, established a vision, policy framework and blueprint of investments to create an interconnected, accessible, efficient, multi-modal transportation system. The VCCV, adopted in 2007, prescribed more detailed improvements to the downtown, waterfront and Uptown Village areas, where significant growth is planned and more intensive investment is needed to accommodate that growth. Both of these plans are based upon a long-term, 20-year planning horizon.

The Westside Mobility Strategy does not replace the comprehensive set of projects and improvements identified by either the TSP or VCCV. The strategy takes a second look at these improvements with a special focus on the issues that are unique to the westside transportation network and have a significant effect on the westside's capacity to accommodate growth while preserving features that are critical to the success of westside neighborhoods, industry, and urban centers.

Major improvements identified by these plans that have been completed were incorporated into the WMS studies and analysis (Table 1).

Table 1. Major completed projects included in WMS analysis

PROJECT	YEAR
Bike lanes on Columbia Street from 8th St. to Mill Plain Blvd.	2014
Waterfront Access Project	2013
<ul style="list-style-type: none"> • Extension of Esther and Grant streets south under the rail line to the waterfront site • Connection of Eighth Street to Jefferson Street and closure of at-grade rail crossings at Eighth and Jefferson • Construction of a Sixth/Seventh Street extension from Grant Street to the west to serve industrial area 	
39th St. Pedestrian and Traffic Safety Improvement Project	2011
39th St. Bridge and Railroad Overpass (WSDOT)	2010
Main St. conversion from one-way to two-way operations	2008
Bike lanes on C Street from 8th St. to McLoughlin Blvd.	2008
Broadway St. conversion from one-way to two-way operations	2007
Fourth Plain Blvd. roadway reconfiguration from four-lane to three-lane with center turn lane and bike lanes from Kauffman Ave. east to C St.	2002

The recommendations of the WMS may modify or prioritize other improvements that were identified by these plans but not yet implemented (Table 2).

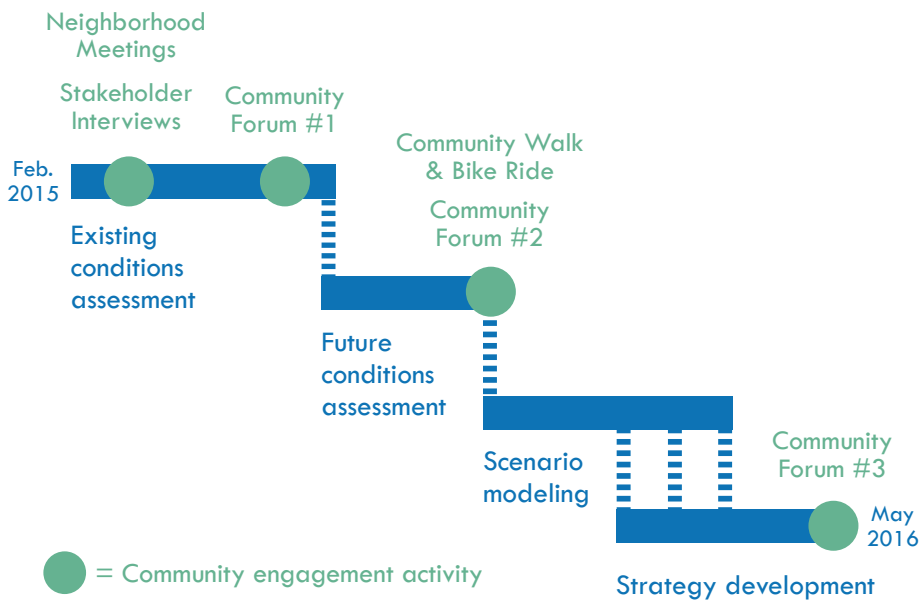
Table 2. Selected projects incorporated into WMS recommendations

PROJECT	PLAN(S)		WMS RECOMMENDATION	REC. NUMBER
	TSP	VCCV		
Motor Vehicle				
32nd Ave. Extension, Fruit Valley Rd. Bridge Replacement and Corridor Improvement	X		Prioritize for implementation.	3.2
Jefferson/Kauffman Realignment from 8th St. to Mill Plain Blvd.	X	X	Integrate roadway design with Jefferson/Kauffman/Lincoln bikeway corridor.	5.2
Main St. Reconstruction from 5th St. to 15th St.	X	X	Prioritize for implementation.	4.3
Pedestrian				
Sidewalks on Lincoln Ave. from NW 39th St. to Bernie Dr.	X		Prioritize for implementation.	6.1
All other sidewalk infill projects on the westside	X		Integrate into citywide Sidewalk Management Program for prioritization.	6.4
Bicycle				
Columbia St. bike lanes from Mill Plain Blvd. to 45th St.	X	X	Bike lanes on Columbia St. are complimentary to the Daniels/Washington Bikeway. The WMS recommends that the Daniels/Washington Bikeway be implemented first.	5.1
Main St. bike lanes from Fourth Plain to 45th	X	X	Study feasibility with Upper Main Roadway Reconfiguration.	4.4
F St. bike route from McLoughlin Blvd to Fourth Plain Blvd.	X	X	Extend the bikeway to connect to Upper Main and/or Discovery Trail and implement with complete package of bike boulevard improvements.	5.3
Lincoln Ave. bike lanes from 39th St. to Bernie Rd.	X		Integrate into planning for the Jefferson/Kauffman/Lincoln bikeway corridor and consider minor adjustments to alignment.	5.2
Mill Plain Blvd. bike route from Columbia St. to D St.	X	X	Study feasibility and effectiveness of alternative alignments as part of Mill Plain Corridor Optimization project.	5.5
8th St. bike route from C St. to Jefferson St.	X	X	Implement as bike lanes and prioritize for implementation.	5.4
Evergreen bike lanes from C St. to Jefferson St.	X	X	Prioritize for implementation.	5.4
29th St., 33rd St. and 45th St. bike routes from F St./Main St. to Kauffman Ave. or Lincoln Ave.	X		Prioritize for implementation.	5.6

Planning process

The development of the WMS was informed by an extensive traffic data analysis, travel demand modeling and community engagement process (Figure 2). Phase 1 of the planning process was designed to uncover insights related to how people and goods move across the westside neighborhoods both now and 20 years into the future. Phase 2 identified and tested the effectiveness of improvements to the transportation network. The process is summarized below. More details about the planning methods can be found in Appendices A-E.

Figure 2. Planning process diagram



Phase 1: Existing and future conditions

The planning process for the Westside Mobility Strategy began with a comprehensive analysis of the existing transportation network and broad projections about the future performance of the network. These analyses produced a base of information from which to identify key issues and trends that affect mobility now and in the future.

The existing conditions assessment involved the collection and analysis of information related to five topics: land use and economic development trends, pedestrian and bicycle infrastructure, arterial roadway conditions, traffic volumes and traffic collisions. The project team summarized the land use patterns of the study area, identified emerging trends in development and redevelopment that may affect transportation needs and assessed economic data related to employment growth and industrial land development. The report documents the network of pedestrian and bike infrastructure, including a typology of the varying types of streetscapes across the westside. Detailed profiles of each arterial were developed to understand the geometric design and land use context of each street and how they vary across the study area. Traffic counting and detection devices were placed throughout the study area to collect data on traffic patterns and traffic volumes, including volumes of freight and commuter traffic that divert through westside neighborhoods when I-5 is congested. Last, the project team collected five years' of data on traffic collisions to understand the location, patterns, types, severity and potential causes and contributing factors of collisions.

The future mobility conditions assessment built on insights gained from the existing conditions analysis. 20-year regional population and employment growth forecasts were adjusted to account for emerging trends and a more localized study area. These projections were input into a travel demand model to project traffic volumes in 2035. Those traffic volumes were compared to roadway capacity—adjusted to account for planned improvements—to identify any road segments where congestion should be anticipated.

Phase 2: Scenario modeling

The existing and future conditions assessments highlighted several major (and minor) improvements with potential to significantly affect traffic patterns and mobility conditions across the westside street network. Specific effects of these improvements—particularly the effects of varying combinations of improvements—were unknown. The project team, in collaboration with transportation planning staff from the Southwest Washington Regional Transportation Council (RTC), recommended the application of a traffic-demand modeling tool known as Dynamic Traffic Assignment (DTA). This tool can project the effects of different combinations of transportation improvements on future traffic volumes across the westside street network. The DTA tool was selected because of its effectiveness in measuring traffic diversion by examining how vehicle travel patterns shift in response to improvements in the street network.

The project team identified five major “packages” of improvements to be tested, and developed four combinations of these packages. Each combination represents a network management scenario; that is, a potential choice about how to best manage the westside transportation network to achieve the goals of the Westside Mobility Strategy. Traffic volumes in 2035 were projected under each network management scenario and compared to the traffic volumes projected in the absence of any of the improvements. The resulting shifts in traffic patterns informed both the development and prioritization of recommended improvements under the strategy.

Community engagement

The purpose of the community engagement process for the Westside Mobility Strategy was to ensure that the project’s findings and recommended strategies address the full range of mobility issues and priorities of the community. The project team established a few goals for the community engagement at the initiation of the project:

- Provide a forum for a shared understanding of the issues, bringing people together with different perspectives
- Engage stakeholders in experiential activities where they can observe conditions and participate in the project firsthand
- Go to stakeholders rather than expecting them to come to us
- Provide a general understanding and awareness that this project will be seeking to improve current conditions

These goals established a framework for the overall approach throughout the process and influenced the selection of community engagement methods and tools. The project team employed a range of methods to build awareness of the project and solicit feedback from the community and stakeholders. Table 3 summarizes each of these methods and tools and a timeline displays when each of these activities took place during the planning process.

The project team captured community perspectives by summarizing comments and grouping them into key themes, recording and organizing the over 150 specific suggested improvements, and synthesizing a set of four community values that should guide transportation planning and investment on the westside.

Table 3. Community engagement methods

METHOD	DESCRIPTION	TIMEFRAME
Stakeholder interviews	Targeted interviews with key project stakeholders to understand their concerns and priorities.	February-March 2015
Booth at Vancouver Farmer's Market	Staffed booth at the Vancouver Farmer's Market downtown to build awareness of the project and encourage participation.	May 23, 2015
Neighborhood meetings	Presentations and discussion with all eight neighborhood associations.	October 2015 to April 2016
Community Forum #1	Presentation on project goals and initial findings and small group breakout sessions to collect detailed feedback and ideas.	May 30, 2015
Community Walk and Bike Ride	A guided walk and bike ride to involve the community in assessing multi-modal infrastructure on the westside.	October 10, 2015
Community Forum #2	Presentation on the findings of the existing and future conditions analysis and community engagement activities, and the proposed DTA modeling scenarios.	October 15, 2015
Community Forum #3	Presentation and open house on the results of the DTA modeling, project team DRAFT recommendations, improvement projects and priorities	May 3, 2016
Digital communications	A detailed website updated with project information, email distribution list, and online form for comments	Ongoing



Community members share their ideas during Community Forum #1



Freight operators discuss the project with City staff

FINDINGS AND IMPLICATIONS

Existing conditions

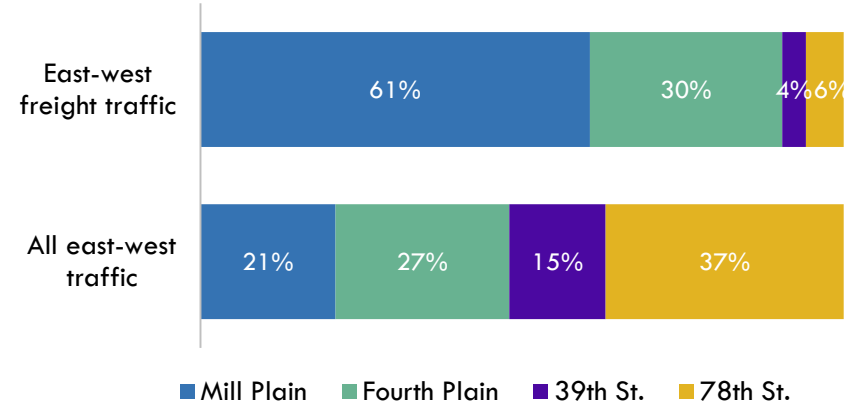
The multi-modal performance of the three main east-west arterials—Mill Plain Boulevard, Fourth Plain Boulevard and 39th Street—does not align with the role of each street in the network.

Mill Plain Boulevard is seen as the preferred route for freight traffic, but it carries only 60 percent of east-west freight traffic (Figure 3). Several problems detract from the corridor’s ability to handle freight traffic efficiently, however, including the fact that access to Mill Plain Boulevard from I-5 is frequently constrained by congestion related to the I-5 and the Columbia River bridges, signal timing issues, intersection design, and merging/weaving deficiencies at the Mill Plain Boulevard/I-5 interchange.

Fourth Plain Boulevard carries the highest traffic volumes among the three arterials, and 30 percent of all east-west freight traffic. However, the street is lined with single-family residences and needs more pedestrian crossings and traffic control measures to preserve safety and livability for neighborhood residents.

39th Street carries 15 percent of overall east-west traffic—and 4 percent of freight traffic—but is perceived as a street where local access and safety should be prioritized due to the high density of single-family residences that front the street, access to Lincoln Elementary and Discovery Middle School, almost exclusively residential land uses, and a relatively narrow right-of-way. Many of the recommendations of this strategy are oriented around balancing the performance of these arterials with the needs of westside land uses.

Figure 3. Motor vehicle and freight traffic volumes on east-west arterials, March 2015



FREIGHT USER PROFILE

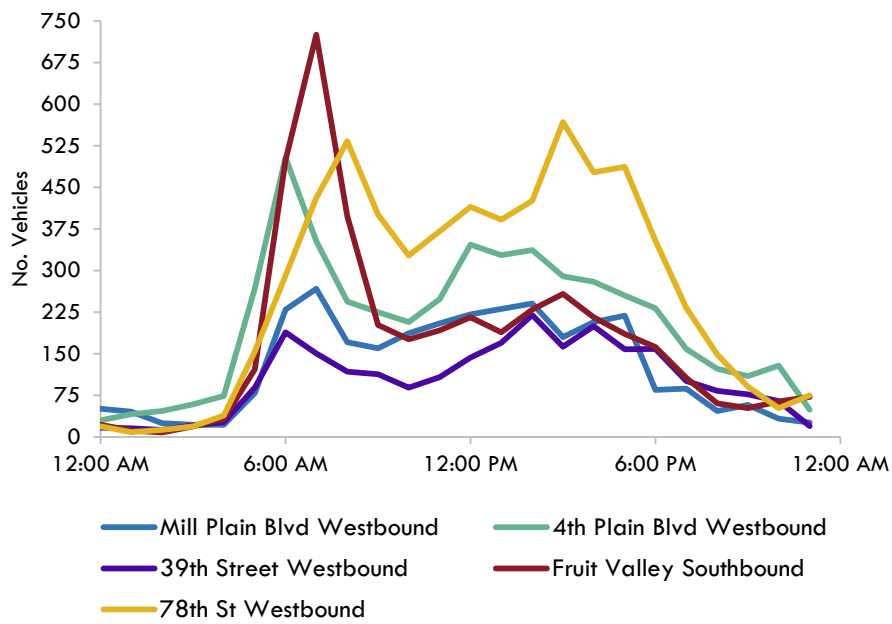
Interstate 5 and westside arterial streets are critical assets for the regional metals manufacturing industry

On a daily basis, trucks from the Portland steel recycling firm Metro Metals travel from the company’s Portland scrap yard over the I-5 bridge to the Port of Vancouver where they leave the scrap to be loaded onto ships and transported to China for recycling. On a regular basis, solid metal plate is shipped back into the Port of Vancouver where it is loaded onto trucks and shipped across I-5 to Portland for use by Evraz steel and other metro area steel manufacturers. In fact, 2015 saw the Port of Vancouver ship out roughly 395,000 metric tons of scrap, while it imported nearly 771,000 metric tons of steel and steel slab. This is but one example of the critical industrial link between Vancouver and Portland that the I-5 bridge provides and another reason while freight mobility is critical to the health of the companies in Vancouver.

Interstate 5 corridor congestion is causing regional motorists to use westside streets that are designed for local traffic.

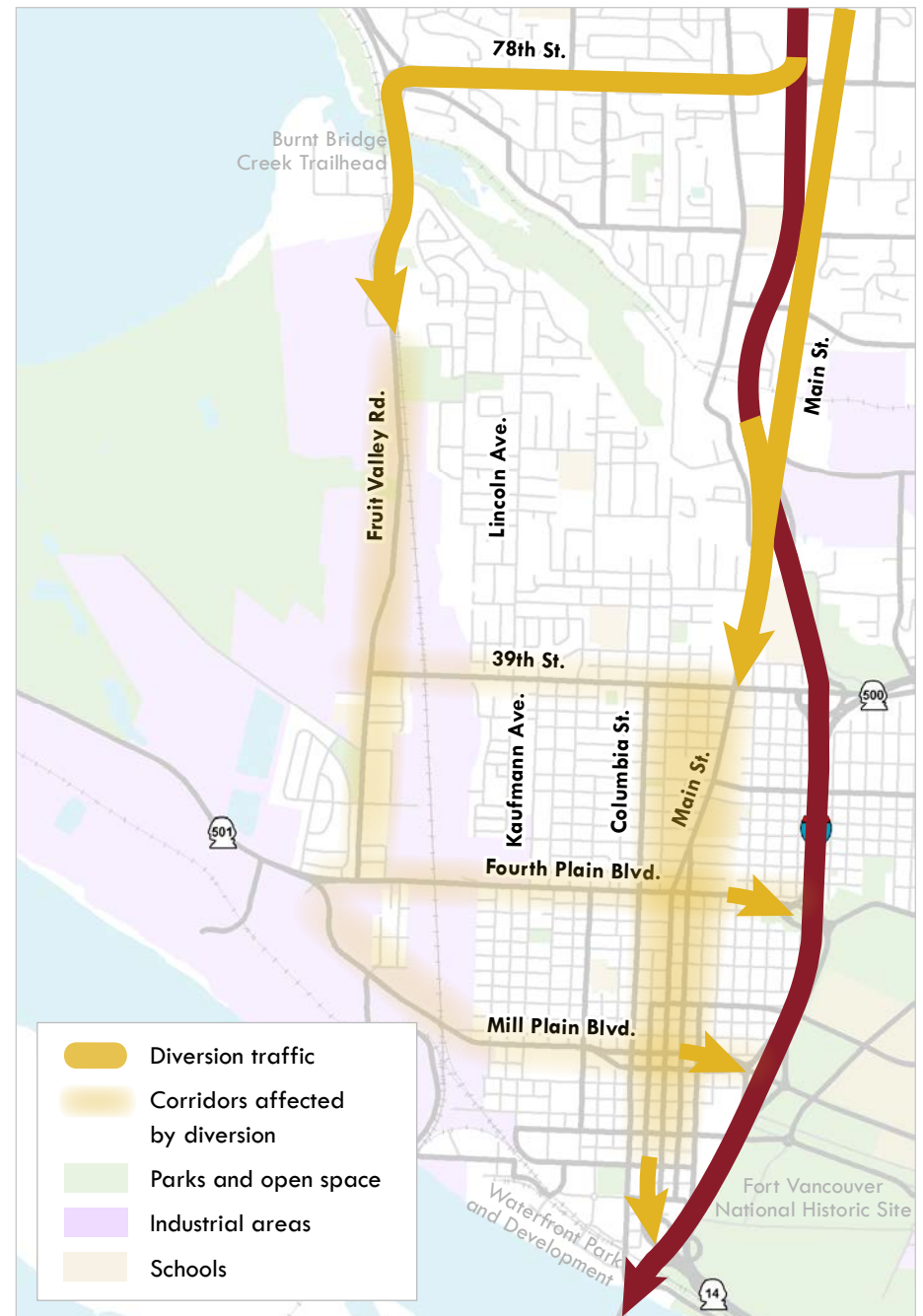
Heavy congestion on I-5, especially in the morning peak hours, induces many drivers to use westside streets as bypass routes (Figure 5). I-5 southbound morning travel time has increased by 291% between 2011 and 2015, a result of average travel speeds reducing from 31 mph in 2011 to 8 mph in 2015.² 78th Street and Fruit Valley Road carry the highest volume of traffic of any westside arterial during the morning peak hour, primarily in the southbound direction (Figure 4). Approximately 1,300-2,800 vehicles per week use Main Street to move south in the morning peak hour and access I-5 south of downtown, rather than staying on or entering I-5 to the north. The collision rate per mile on Main Street is over twice the comparable average, with many collisions clustered around the street's intersections with arterials that connect to I-5. Both improvements to Main Street and to I-5 are necessary to restore safe and efficient traffic flow on one of Vancouver's most important streets.

Figure 4. 24-hour traffic volumes, selected arterials, March 2015



² Southwest Washington RTC, Congestion Management Process 2015 Summary Report

Figure 5. Conceptual map of I-5 diversion traffic



Main Street is seen as a destination, the commercial spine and civic identity of Vancouver, but lacks a coherent and consistent design to fulfill that role.

There are three distinct segments of Main Street, and each needs different types of improvements for the street to support the multiple goals of economic vitality, neighborhood livability, and safety. Within downtown Vancouver, the street benefits from the charm of historic building frontages, but has inconsistent streetscape design, broken curbs, damaged landscape areas, and inconsistent traffic controls that cause confusion for drivers and detract from pedestrian accessibility.

Main Street in Uptown Village has a more consistent streetscape and wider sidewalks, but pedestrian crossings are too infrequent. North of Fourth Plain Boulevard, Main Street widens to a four-lane configuration that induces traffic diversion from I-5, and pedestrian crossings are widely spaced. There is an opportunity to make the diverse modifications and safety improvements to Main Street that are needed in each segment while also unifying the street in a way that reflects its economic and civic importance to Vancouver.



Widely spaced pedestrian crossings in Uptown Village lead people to cross at unmarked and unsignalized intersections



The inconsistent and deteriorating streetscape of Main St. in downtown detracts from the street's ability to support a thriving retail district



Upper Main's four-lane design and wide travel lanes encourages high speeds and diversion traffic from I-5

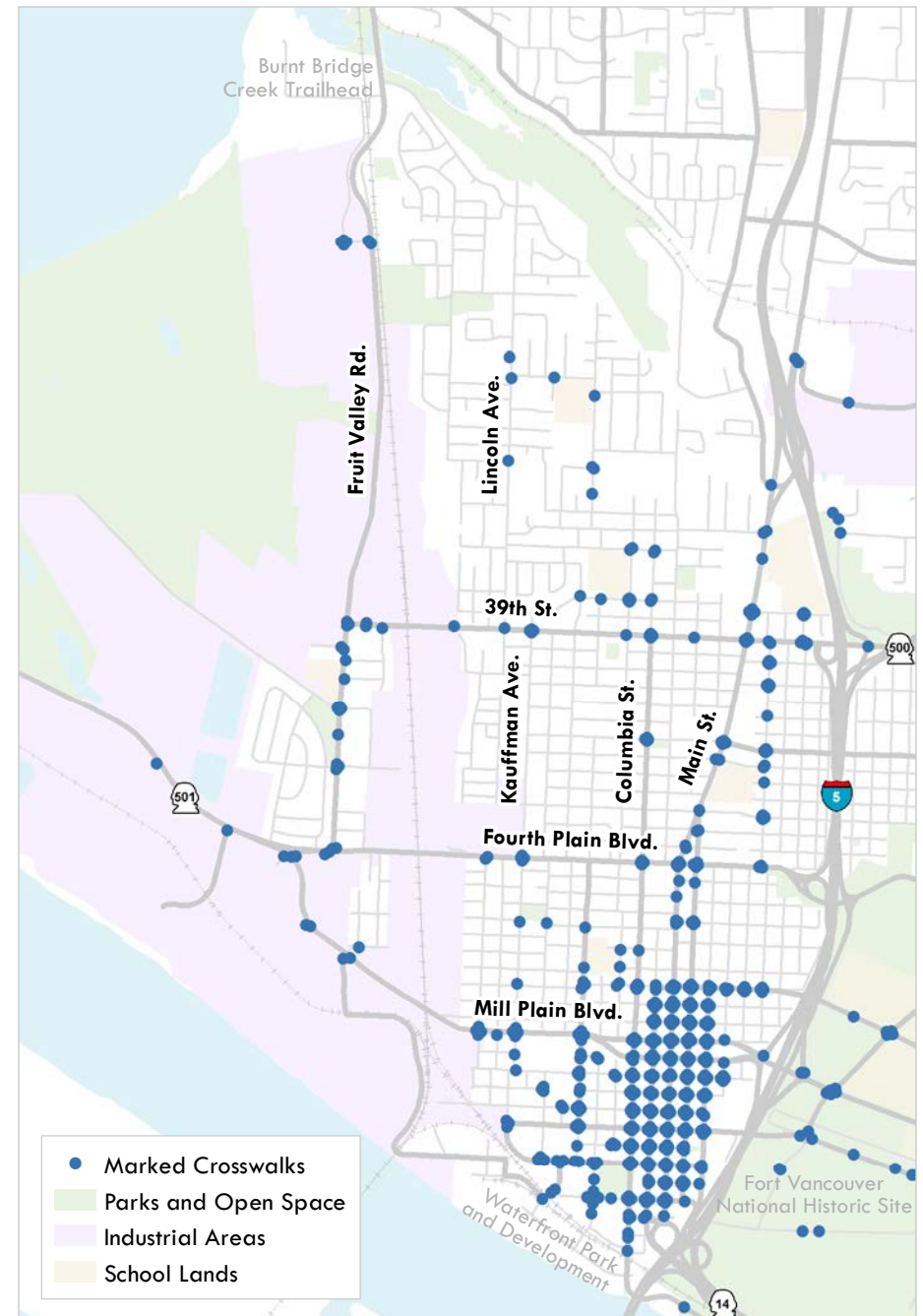
Moving north-south on the westside is inconvenient and sometimes challenging for all modes.

There are several major east-west arterials on the westside, and crossing those arterials from neighborhood to neighborhood can be inconvenient or even challenging. Signal timing often prioritizes east-west traffic flow, so motorists, pedestrians and bicyclists moving from north to south have to wait for long periods of time at intersections with major arterials, even on weekends or evenings when the demand for east-west traffic flow is lower. All of the east-west arterials would benefit from more frequently spaced pedestrian and bike crossings to minimize out-of-direction travel or crossing without a marked crosswalk or signal (Figure 6). North-south bike routes lack sufficient intersection controls or markings to provide safe crossings of the arterials.



There is nearly 2000 linear feet between marked pedestrian crossings of Fourth Plain Blvd. between Columbia St. and Kauffman Ave.

Figure 6. Existing marked pedestrian crossings



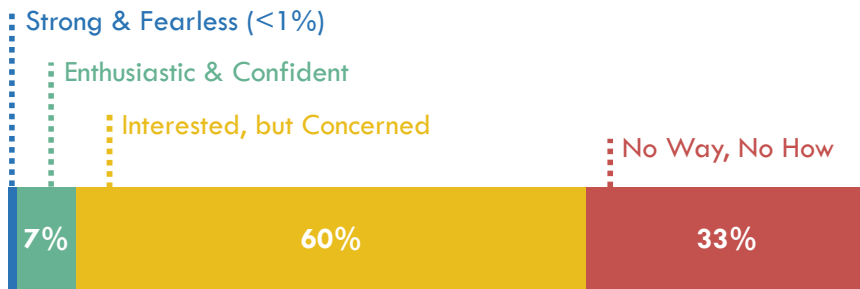
Bicycle and pedestrian networks are incomplete.

In addition to the need for more frequent and safe crossings, the westside network of bikeways and sidewalks is incomplete. Streets with bike lanes or streets with sharrows are interrupted by sections of streets without any markings, such as Evergreen Street between C Street and Jefferson Street (Figure 8). Many other designated bikeways need additional improvements to function effectively.

There are many westside residents that would ride more often if there was more convenient and safe access to Vancouver’s low-stress bike facilities such as the Burnt Bridge Creek Trail and the Discovery Trail along the Columbia River waterfront. Many potential cyclists (including children and the elderly) may avoid on-street cycling if no physical separation from vehicular traffic is provided. Vancouver’s bike lanes and sharrows that share the roadway adjacent to moving traffic and parked cars do not provide enough physical separation to feel safe for these potential riders. These people—known as the “interested, but concerned” cohort in research on bicycling behavior—represent 60 percent of the average urban population (Figure 7).³

Sidewalks are mostly absent north of 39th Street and experience gaps throughout the westside (Figure 9). Pedestrian signal timing at intersections is inconsistent and may not provide sufficient crossing time for some users.

Figure 7. Types of transportation cyclists by share of population³



³ Adapted from: Geller, R. (2006). *Four Types of Cyclists*. Portland Bureau of Transportation.

Figure 8. Bikeway network gaps

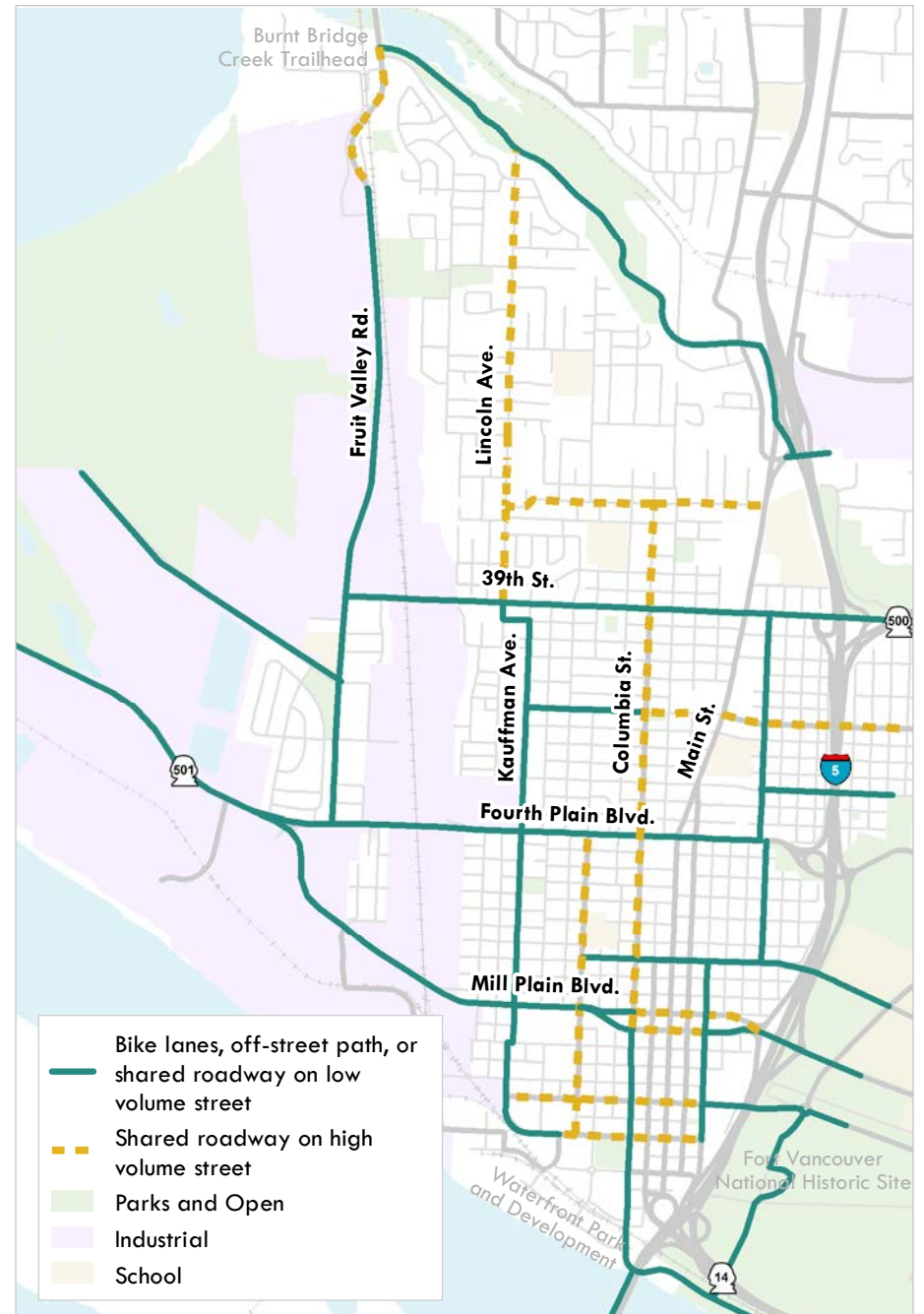
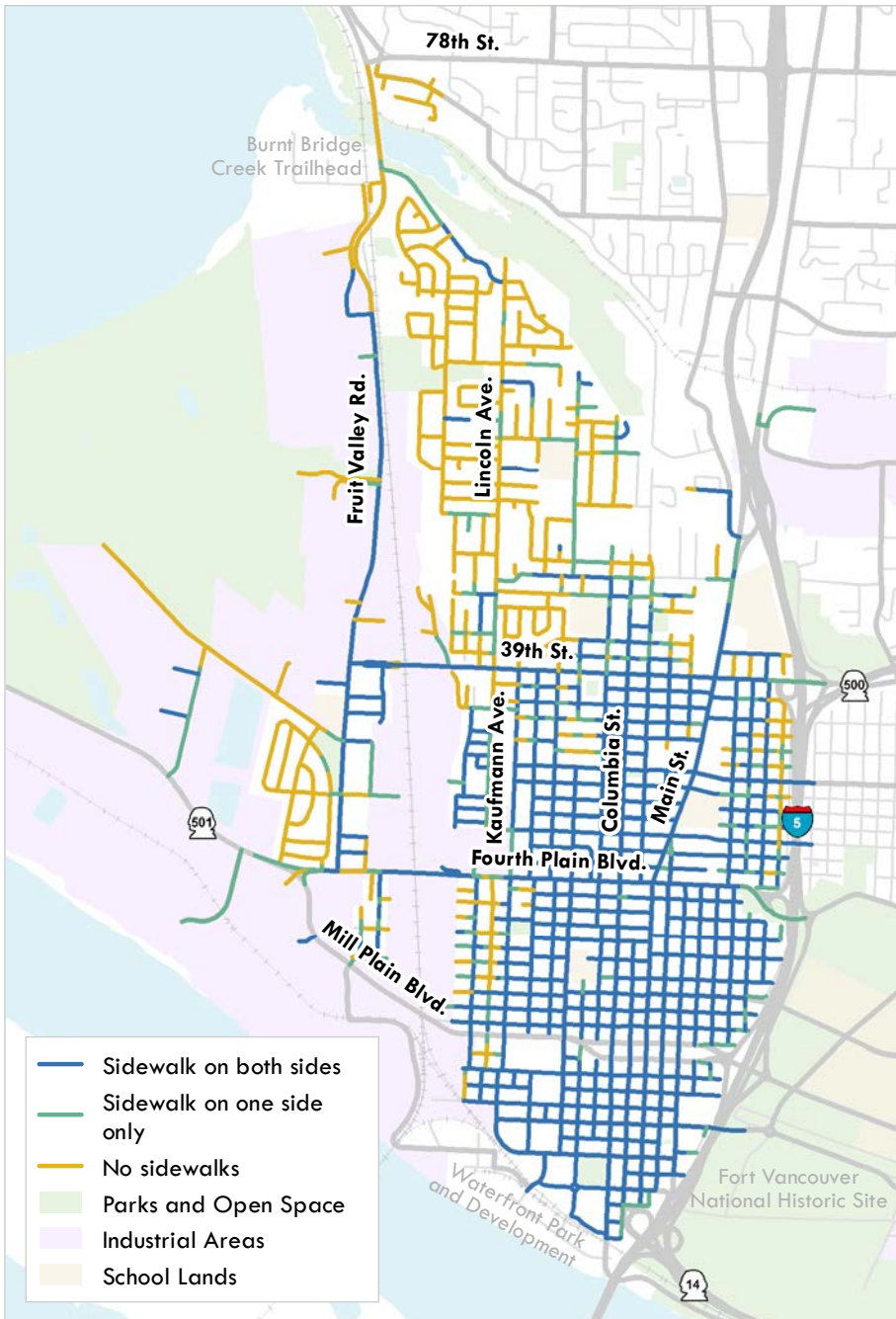


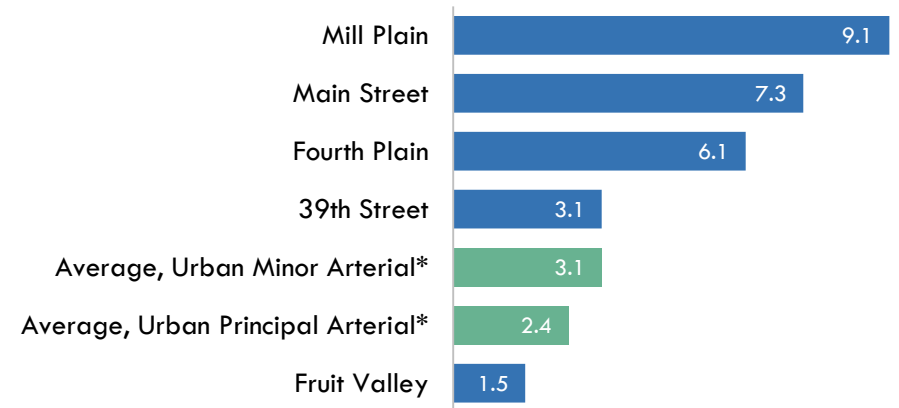
Figure 9. Sidewalk network gaps



Collisions on some arterial streets are higher than comparable averages and most dangerous for people who walk or bike.

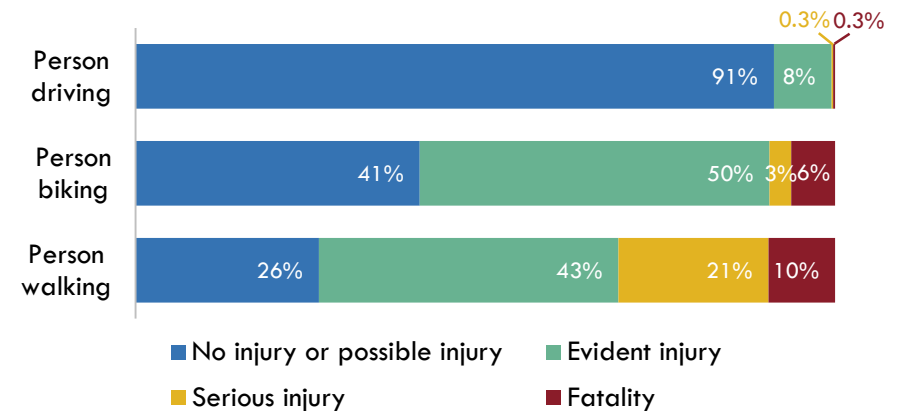
Mill Plain Boulevard, Main Street and Fourth Plain Boulevard have collision rates that are twice or more than the comparable average (Figure 10). Across the study area, people who walk or bike are more likely to be seriously injured or die in a collision (Figure 11). Most of the recommendations of this study address safety, but the root causes of these collisions need further analysis.

Figure 10. Collision rates (collisions per mile), selected arterials, 2010-2014



*Source: Oregon Department of Transportation, Crash Tables, 2013

Figure 11. Collision severity by mode, 2010-2014



Future projections and scenario modeling

Significant growth in housing and jobs is anticipated through 2035, but currently planned improvements will provide the capacity to manage higher traffic volumes.

The Port of Vancouver and surrounding industrial areas expect to house an additional 2,500 jobs by 2035, and substantial household growth is expected in the waterfront development area and downtown. I-5 is currently operating with overcapacity conditions.⁴ If planned improvements are built—including the Mill Plain Boulevard corridor project, interstate bridge replacement and 32nd Avenue extension—then all westside arterials will have capacity for 2035 traffic volumes, with the exception of a few pinch points on I-5 interchanges and Fruit Valley Road north of the Fruit Valley Road railroad bridge (Figure 12).

Figure 12. Volume-to-capacity designations, 2035 projections



⁴ Southwest Washington RTC, Congestion Management Process 2015 Summary Report

Constructing the 32nd Avenue extension and controlling diversion traffic onto Main Street will shift traffic from the neighborhood core to the periphery of the study area.

Three of the four modeled scenarios included construction of the 32nd Avenue extension and changes to traffic controls on Main Street. In each of these scenarios, traffic volumes shifted from arterial streets in the interior of the study area—Main Street, Columbia Street, Kauffman Avenue and Fruit Valley Road—to major roadways on the periphery (Figure 13). The shift is more pronounced during the morning peak hour, when congestion on I-5 causes more diversion through the westside.

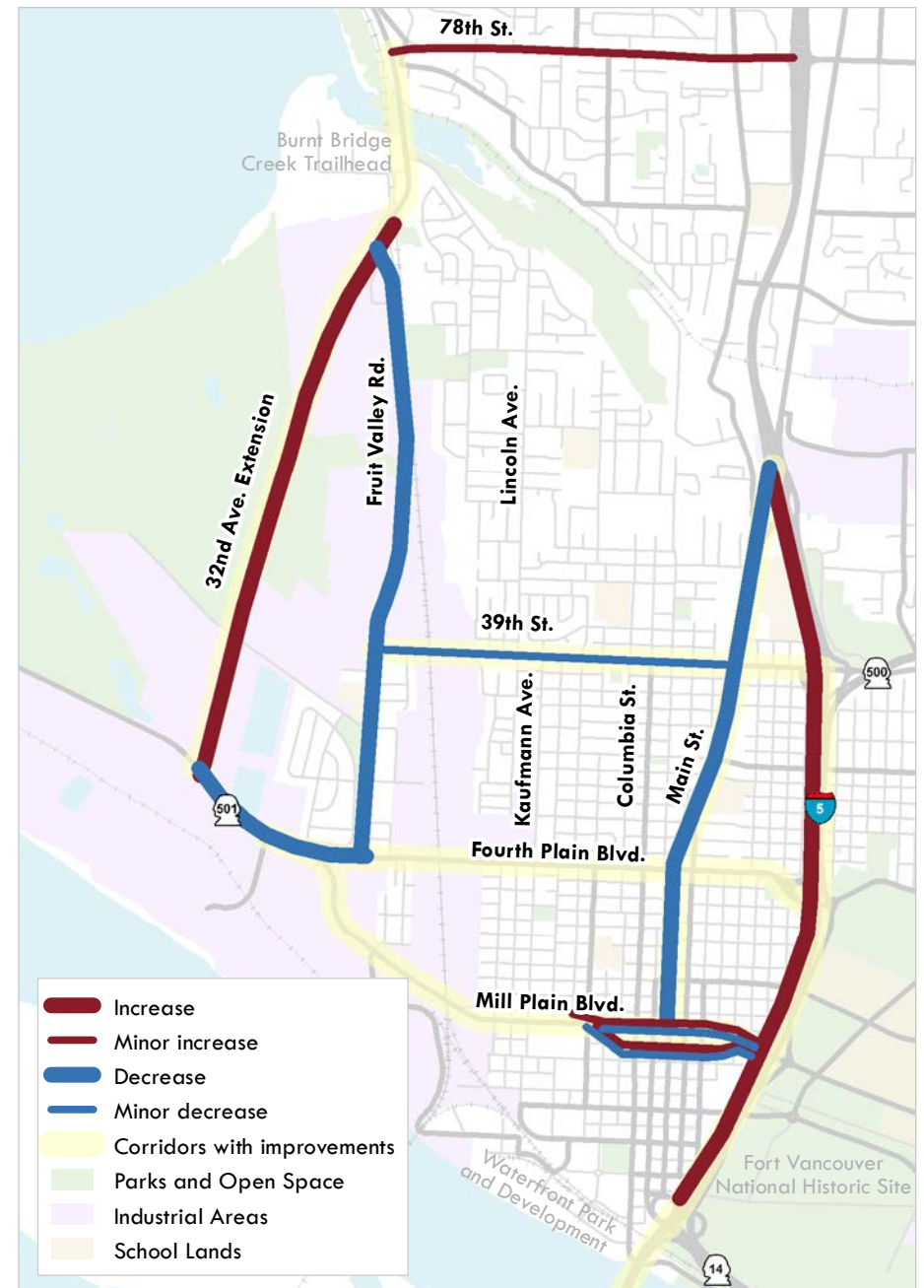
This shift is important because traffic that diverts from I-5 and circulates through westside neighborhoods contributes to an array of safety and livability issues in the study area. The scenario modeling clarified that these major improvements will be effective in mitigating diversion, even with significant growth in traffic volumes over the next 20 years.

Strategic, short-term improvements can affect traffic patterns prior to implementation of major capital projects.

Additional intersection traffic controls or optimization of traffic calming strategies can affect traffic patterns—even in the absence of projects that expand capacity—by getting the traffic behavior to better align with the intended function of the roadway and surrounding context. These types of improvements are also consistent with the direction of the improvements that will require more time to plan, fund and design prior to implementation. These improvements also support safety for people walking or biking.

Examples of short-term improvements could include a pedestrian crosswalk at 25th and Main Streets, new traffic control strategy at 39th Street and Lincoln Avenue, and updating traffic signals on Mill Plain Boulevard to enhance reliability for freight.

Figure 13. Traffic volume shifts compared to base 2035 projections, modeled using Dynamic Traffic Assignment (DTA)



Community feedback

Suggested improvements

The project team recorded, organized and analyzed the dozens of comments and suggestions received throughout the community engagement process. Community members and stakeholders suggested over 150 ideas for ways to improve the transportation network on the westside of Vancouver. The list of suggested improvements was a useful tool during the development of the strategy, mobility goals, and recommendations.

Key themes

Community suggestions and comments were also distilled into a list of key themes. The key themes represent perspectives that were widely shared throughout the community and are outlined below:

- The need to plan and manage westside arterial streets as an interdependent network as changes to one part often affect other parts unintentionally.
- Recognition that congestion on I-5 is a root cause of many of the westside's transportation issues.
- Desire to balance the needs of multiple travel modes (bicyclists, pedestrians, auto commuters, freight) and multiple users (livability and safety for neighborhood residents, predictability for freight and commuters).
- Cut-through traffic moving north-south through the area—usually diverted from I-5—causes congestion and reduces safety for all users.
- Projected future development—both in the industrial Port area and in the downtown/waterfront area—is likely to intensify pressure on the transportation network on the westside.
- Consensus-building, dialogue and collaboration with all stakeholders will be foundational to successful planning and implementation of improvements.



Community members suggest improvements during Community Forum #1

- North-south travel is generally most challenging for bicyclists and pedestrians because they have to cross multiple busy arterial streets and bike and pedestrian facilities are inconsistent.
- Speeding is a persistent issue that impacts neighborhood livability and safety; a broad mix of strategies is needed to reduce speeding, including enforcement, traffic calming, and signal timing.
- Schools are considered points of safety concerns between modes by both residents and freight operators.
- Operational and educational interventions such as signal timing, signage, radar feedback, wayfinding, and coordination among freight operations are seen as potential actions.
- Mill Plain Boulevard is widely viewed as the most appropriate route for freight.
- Main Street is perceived as a place and should be a vibrant shopping and dining destination.
- Safety for pedestrians and bicyclists crossing or traveling along 39th Street and Fourth Plain Boulevard is a concern.

Community values

Community feedback was further synthesized into four community values in order to develop a broader framework to guide the development and prioritization of the project's recommendations (Figure 14).

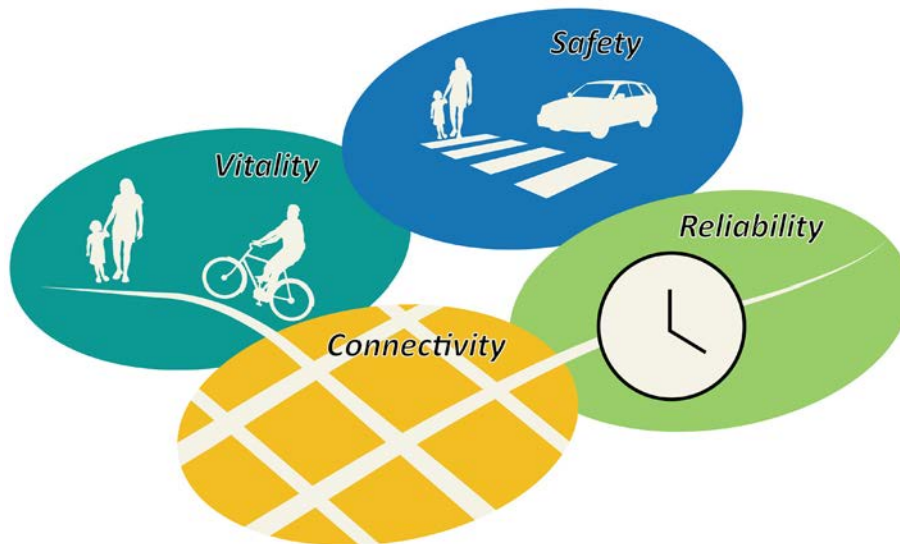
These four community values represent what many westside residents, employees and business owners believe is most important to improving mobility in westside neighborhoods, industrial areas and downtown:

1. Improved transportation **safety** for all network users;
2. Improved **connectivity** for people who bike or walk, especially on north-south routes;
3. Improved east-west **reliability** for freight users; and
4. The preservation of land use **vitality** by managing traffic and freight to sustain long-term value and multi-modal accessibility.



Community bike ride participants discuss opportunities and challenges

Figure 14. Community values



Community walk participants share ideas for improving walkability

MOBILITY CONCEPT

Balanced mobility as a guiding principle

Many factors prompted the need for the Westside Mobility Strategy: ongoing and anticipated residential development, the resurgence of historic neighborhoods, continued industrial growth, and chronic congestion of the I-5 corridor. Existing projects have dealt with specific issues across the study area, but the WMS represents the first comprehensive analysis of the mobility needs west of I-5.

This project's research, analysis, and community engagement highlights a need and opportunity to embrace a principle of balanced mobility: an approach that views transportation planning and decision-making as inextricably linked to broader goals and values, including economic vitality, neighborhood livability, and multi-modal connectivity and safety.

Balanced mobility concept

The mobility concept applies the guiding principle of balanced mobility to the westside street network. Figure 15 illustrates the balanced mobility concept, which includes existing and proposed bike route designations. Five key ideas define the mobility concept:

1. The 32nd Avenue Corridor Extension is constructed and Mill Plain Boulevard is optimized to provide reliable, efficient freight movement between industrial areas and I-5.

32nd Avenue is a state-of-the-art roadway that connects regional freight destinations, draws freight and commuter traffic away from neighborhood streets, catalyzes industrial development and offers a separated bicycle and pedestrian facility for people walking and biking to access regional recreational areas such as Vancouver Lake and Frenchman's Bar. The Mill Plain Boulevard corridor is optimized for freight reliability, adjusts to varying land use contexts and provides a safe and efficient connection to I-5.

2. Fourth Plain Boulevard, Fruit Valley Road and 39th Street are managed to align with their roles in the arterial network.

Fourth Plain Boulevard and Fruit Valley Road continue to function as secondary freight corridors, but traffic-calming and traffic control modifications are put in place to mitigate the negative impacts of freight on neighborhood livability and to manage speeds to relate to neighborhood context. Freight traffic is minimized on 39th Street by implementing a range of interventions to restrict and discourage freight through-traffic.

3. Main Street is established as the vibrant, commercial spine of the westside and a source of civic identity for all of Vancouver.

Upper Main Street is improved to manage traffic diversion and provide safe, multi-modal mobility. Uptown Village has safe, frequent pedestrian crossings and continual enhancements to the pedestrian environment. Main Street in downtown features streetscape and sidewalk improvements that result in a complete, consistent and attractive destination that fosters urban vitality.

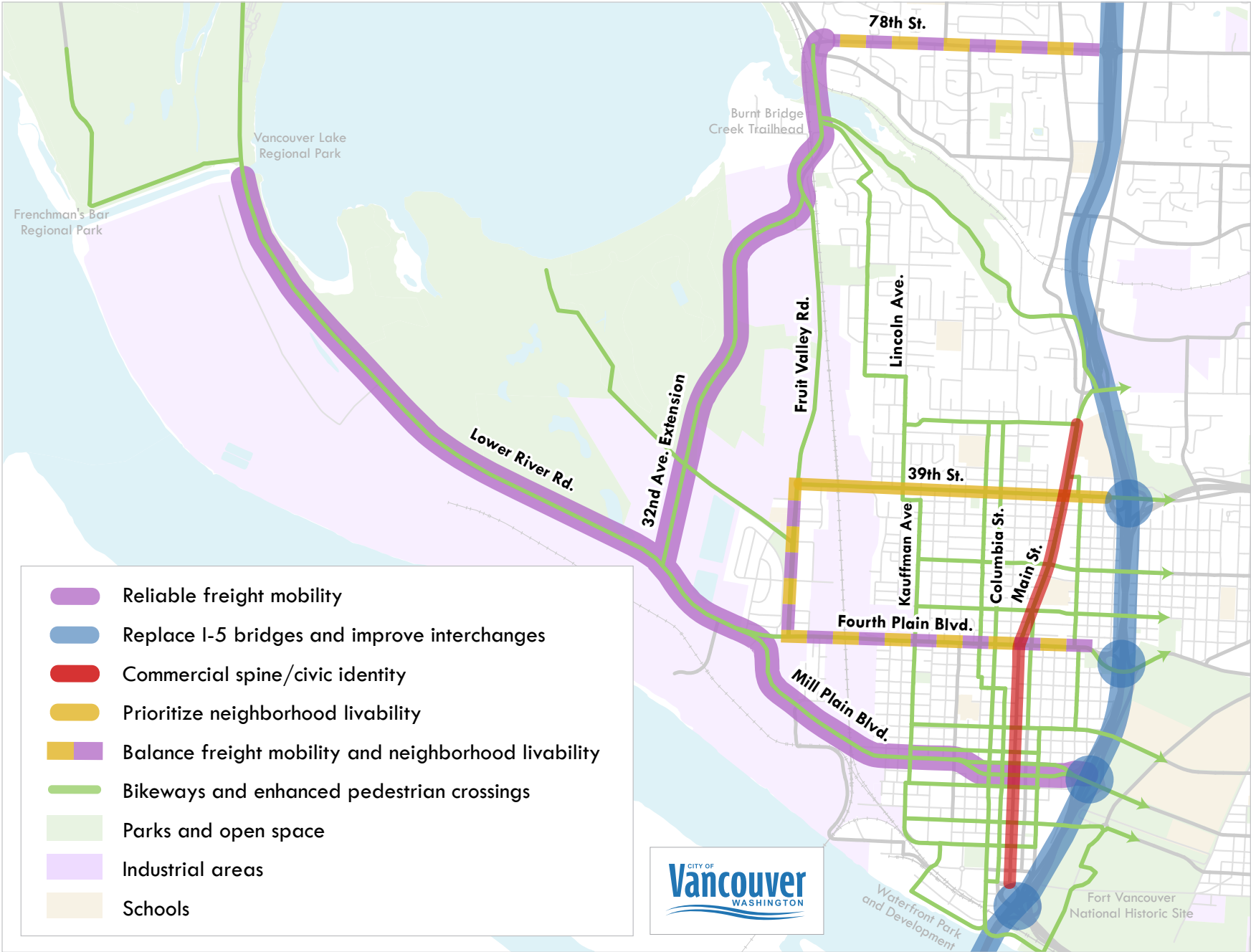
4. A complete, interconnected network of bikeways and safe pedestrian routes spans the westside.

Bikeways either provide dedicated bike lanes or a comprehensive package of markings, signage and traffic calming to create low-stress, family-friendly routes that both protect existing riders and encourage new riders. Enhanced crossings of arterial streets are more frequent and improved with additional bike and pedestrian safety features.

5. The City of Vancouver is a regional leader and active partner in supporting strategic improvements to the I-5 corridor.

Short-term optimization of the I-5 corridor is pursued and implemented while long-term modernization and reconstruction is developed. Over time, I-5 handles peak traffic volumes more efficiently and less traffic is diverted onto 78th Street, Main Street, and other local streets.

Figure 15. Balanced mobility concept



MOBILITY GOALS AND RECOMMENDATIONS

1 Create a Systematic Plan to Increase Safety

- 1.1 Conduct a Citywide Transportation Safety Assessment

2 Manage Arterials to Preserve Neighborhood Livability

- 2.1 Develop interim policy identifying preferred freight corridor designations for neighborhoods west of I-5.
- 2.2 Prohibit freight through-traffic and manage commuter traffic on 39th Street.
- 2.3 Modify traffic signal timing to balance all directions of travel and for variations in travel patterns by day-of-week and time-of-day.
- 2.4 Educate and inform freight users of the preferred truck routes.
- 2.5 Advocate for police enforcement on key arterial corridors to manage speeds and preserve safety and livability.
- 2.6 Mitigate the negative impacts of freight traffic on Fourth Plain Boulevard and Fruit Valley Road on residential neighborhoods.
- 2.7 Continue implementation of the Jefferson/Kauffman/13th Street Alignment project.

3 Develop Efficient and Reliable Freight Routes

- 3.1 Optimize Mill Plain Corridor and Mill Plain/I-5 Interchange for reliable freight travel.
- 3.2 Design and construct the 32nd Avenue Extension corridor and rebuild the Fruit Valley Road Bridge.

4 Retrofit Main Street to Promote Vitality and Safety

- 4.1 Implement capital projects that would improve pedestrian accessibility in uptown.
- 4.2 Coordinate Main Street corridor improvements from 5th to 45th Street.
- 4.3 Prioritize Main Street capital improvements.

- 4.4 Implement a Road Diet to manage diversion traffic, operational and safety issues on Upper Main Street

5 Complete Key Connections in the Bikeway Network

- 5.1 Create a Daniels-Washington bikeway.
- 5.2 Jefferson/Kauffman/Lincoln corridor.
- 5.3 F Street/C Street corridor.
- 5.4 Downtown East-West corridors.
- 5.5 Mill Plain Boulevard alternative bikeways.
- 5.6 Neighborhood East-West and Burnt Bridge Creek Trail corridors.

6 Make Walking Safe and Convenient for All

- 6.1 Complete key sidewalk infill connections north of 39th Street.
- 6.2 Enhance pedestrian crossings of westside arterials
- 6.3 Modify signal timing across the westside to support pedestrian safety.
- 6.4 Strategically prioritize future infill of sidewalks and crossings.
- 6.5 Evaluate updating and expanding a wayfinding strategy for downtown and neighborhoods west of I-5.
- 6.6 Improve quality of existing sidewalks and crosswalks.

7 Build Partnerships for Regional Projects

- 7.1 Work with regional partners to advance important regional projects.

8 Monitor Performance of Streets

- 8.1 Develop transportation performance measures and monitoring methodology for the westside of Vancouver.
- 8.2 Report progress to City Council and westside stakeholders every two years.

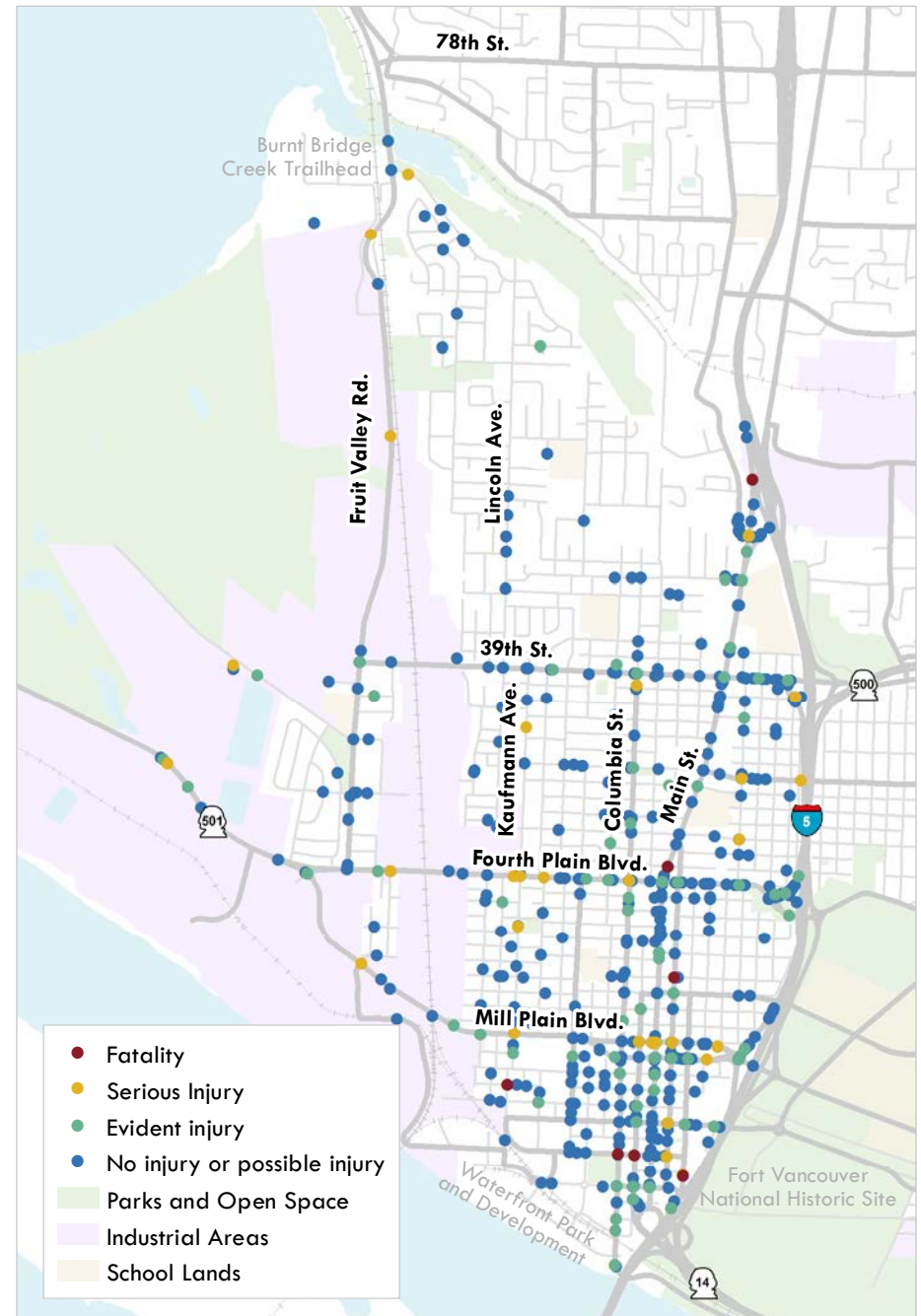
Create a Systematic Plan to Increase Safety

The WMS project took the first step in identifying the transportation safety issues in Vancouver’s westside neighborhoods with a high-level review of WSDOT Collision Data from 2010 through 2014 (Figure 16). The second step, a Citywide Transportation Safety Assessment (CTSA), will further analyze the collision data and drill down to identify the causes, contributing factors and develop specific recommendations for both systemic risks and hot spot locations. CTSA’s are common industry practice and are most efficient when conducted at the jurisdiction-level, not the sub-area level.

Recommendations

- 1.1 Conduct a Citywide Transportation Safety Assessment (CTSA) for the City of Vancouver that will analyze transportation safety Citywide, recommend location-specific safety improvements, prioritize improvements and provide cost estimates.

Figure 16. Collisions by severity, 2010-2014



Manage Arterials to Preserve Neighborhood Livability

The arterial roadways west of I-5 serve multiple purposes and provide access to land uses for a variety of users. Residents desire quiet streets. Business owners desire convenient access. Industry desires reliable travel times. With so many expectations laid upon the arterial streets, the following issues need to be addressed:

- Interviews of freight stakeholders unveiled that some truck drivers—and potentially the logistics managers that direct truck routing—are unaware of the preferred and optimal routes for trucks across the westside.
- Existing traffic signals throughout the westside are timed to prioritize east-west mobility, especially on arterial corridors. North-south mobility is also important for local commuters and neighborhood traffic accessing destinations within the westside, including downtown and the future waterfront development area. East-west traffic volumes are lower in the evenings and on weekends, but traffic signal timing does not change to align with this change in traffic patterns.
- With a relatively narrow two-lane right-of-way, long stretches of single-family homes minimally setback from the travel lanes, and numerous schools within a short walk, freight traffic and high volumes of commuter traffic on 39th Street have a negative effect on the livability and safety of the surrounding neighborhoods.
- Residents often complain about speeding vehicles through neighborhoods. The Vancouver Police Department Traffic Complain Hotline, between 2008 and 2014, recorded 346 complaints about speeding in westside neighborhoods out of a total of 476 complaints. Permanent speed control measures—such as physical structures in the roadway or radar feedback signs—are the most effective way to limit speeds to safe levels on a consistent basis. Limiting speeds on arterial



39th Street's narrow right-of-way and predominantly residential land uses mean that the impacts of freight traffic are felt acutely.

- corridors reduces roadway noise and protects people who walk or bike because the risk of fatality in a collision increases exponentially with speeds above 30 miles per hour.
- Many industrial businesses located north of Mill Plain Boulevard that need to move freight southbound on I-5 and eastbound on SR-14 will continue to use Fruit Valley Road south of 39th Street and Fourth Plain Boulevard. Routing trucks to Mill Plain Boulevard from these locations would cause out-of-direction travel. Additionally, Fourth Plain Boulevard can provide an alternative route if Mill Plain Boulevard is congested due to a collision or other event. In the future, some of these industrial users may be able to use the proposed 32nd Avenue as an alternative to Fourth Plain Boulevard and Fruit Valley Road for access to I-5. The function and role of Fruit Valley Road and Fourth Plain Boulevard should be reevaluated at that point to determine if it is feasible to reduce truck traffic in order to make a positive impact on neighborhood livability. In the interim, the level of truck traffic on Fourth Plain Boulevard and Fruit Valley Road is not anticipated to decrease.

Recommendations

2.1 Develop an interim policy identifying preferred freight corridor designations for neighborhoods west of I-5.

The interim policy should be re-evaluated with the City Transportation System Plan update in 2017.

2.2 Prohibit freight through-traffic and manage commuter traffic on 39th Street.

A range of interventions should be considered and implemented to preserve the livability of residential neighborhoods, including:

- Additional traffic control or modifications to existing traffic control at intersections that would increase travel times and discourage high volumes of commuter traffic.
- Speed control measures, including devices in the roadway to provide physical or horizontal deflection that reduces speeds (Figure 17).
- Signage to communicate that only local-access trucks are permitted and that freight routing through the neighborhood is prohibited.
- Enhanced protection and signalization of existing pedestrian/bike crossings and installation of new pedestrian/bike crossings.

2.3 Modify traffic signal timing to balance all directions of travel and for variations in travel patterns by day-of-week and time-of-day.

In coordination with proposed traffic signal improvements to the Mill Plain corridor (2017-19 WSDOT funded project), all traffic signals across the westside should be evaluated and modified where appropriate to balance all directions of travel and variations in traffic patterns by day-of-week and time-of-day.

Figure 17. Raised crosswalk concept for 39th Street



Source: National Association of City Transportation Officials, Urban Street Design Guide

2.4 Educate and inform freight users of the preferred truck routes.

In partnership with the Port of Vancouver, disseminate information on preferred freight routes to firms and institutions involved in freight logistics, including WSDOT, the dispatch units of trucking companies and local industry and providers of truck route software such as PC*MILER and CoPilot Truck.

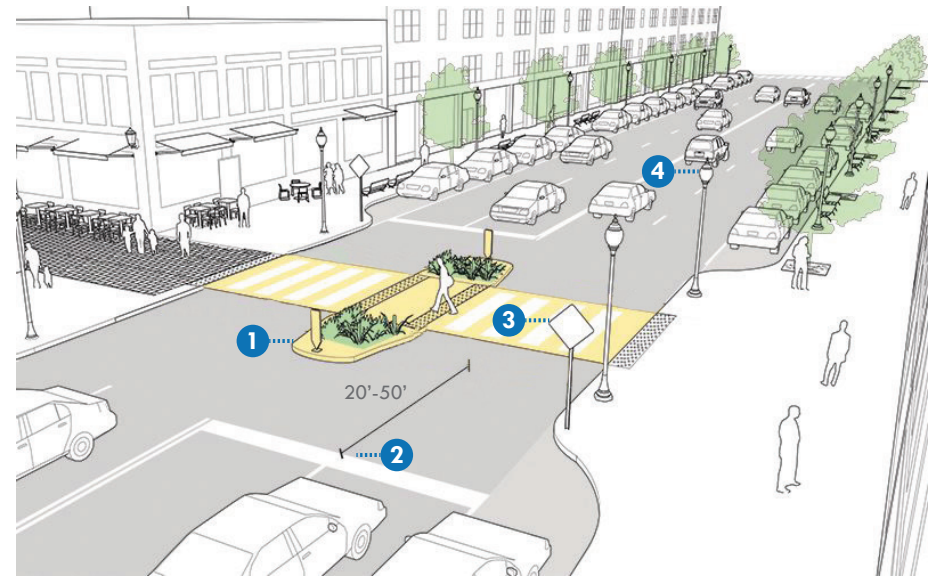
2.5 Advocate for police enforcement on key arterial corridors to manage speeds and preserve safety and livability.

Regular patrols of police enforcement by the Vancouver Police Department (VPD) Traffic Unit can play a role in managing speeds, especially the most egregious violators of the speed limit.

2.6 Mitigate the negative impacts of freight traffic on Fourth Plain Boulevard and Fruit Valley Road on neighborhoods.

A range of measures should be considered and implemented to mitigate these negative impacts, including:

- Evaluation of pavement surfaces that may dampen the noise caused by large trucks, which may include rubberized asphalt;
- Reduction of the speed limit on Fourth Plain Boulevard between I-5 and Kauffman Avenue;
- Installation of speed control measures that do not affect vehicle operations, such as radar feedback signs, pedestrian refuge islands at designated crosswalks, or lane narrowing;
- Restrictions on truck traffic at night, when unmuffled engine-braking noise impacts are most severe;
- Implementation of enhanced protection and signalization of existing pedestrian/bike crossings and installation of new pedestrian/bike crossings (Figure 18); and
- Evaluation of freight access improvements that would reduce out-of-direction travel in the area of Mill Plain Boulevard/Fourth Plain Boulevard/Fruit Valley Road industrial uses.



- 1 Refuge island limits number of lanes to cross at one time
- 2 Stop bar encourages safe stopping distance
- 3 Signs and beacons signal presence of pedestrian
- 4 Illumination ensures visibility of pedestrians at night

Source: National Association of City Transportation Officials, Urban Street Design Guide

2.7 Continue implementation of the Jefferson/Kauffman/13th Street Alignment project.

This ongoing Transportation Improvement Program project will upgrade a priority westside arterial circulation route with realignment of Jefferson/Kauffman at 13th St. The improvements will allow for more convenient and direct access from Mill Plain Boulevard to and from the Crescent Industrial area and the waterfront neighborhood redevelopment project. The project will also extend the Discovery Trail from the intersection of Jefferson Street and Evergreen Street to connect with the existing multi-use path on the south side of Mill Plain Boulevard.

Develop Efficient and Reliable Freight Routes

Recommendations

3.1 Optimize Mill Plain Corridor and Mill Plain/I-5 Interchange for reliable freight travel.

Mill Plain Boulevard has been designed and improved over decades to be the optimal route for efficient freight movement between I-5 and the Port of Vancouver and surrounding industrial areas. Continued population growth and shifting industrial specializations drive the need for additional improvements, however. Signal heads, signal timing and intersections need to be redesigned to accommodate all sizes and types of trucks that use the roadway and provide reliable traffic flow. The Mill Plain/I-5 interchange needs significant modifications and enhancements to more efficiently manage growing freight and commuter traffic volumes.

WSDOT identified these issues in the 2015 Connecting Washington transportation funding bill, and the Mill Plain Boulevard corridor is slated for improvements with design beginning in 2017. The interchange will be improved with design beginning in 2022. In partnership with the Port of Vancouver, WSDOT, and neighborhood stakeholders, the City can leverage the WSDOT project to implement a number of improvements to both optimize Mill Plain Boulevard for east-west freight movement and promote safety and accessibility for people who walk and bike.



Mill Plain is the optimal route for freight, but needs additional investment to operate efficiently and reliably in a dense, urban context.

3.2 Design and construct the 32nd Avenue Extension corridor and rebuild the Fruit Valley Road Bridge.

The 32nd Avenue Extension and Fruit Valley Road bridge improvement projects are currently identified in the City's Transportation Improvement Program (TIP). Preliminary engineering and an environmental impact study for the 32nd Avenue Extension was underway but put on hold in 2009. With the new western arterial roadway, the Fruit Valley Road Bridge will be replaced with a wider bridge better able to safely accommodate freight, vehicles, pedestrians and bicyclists (Figure 19). There are four primary benefits to building this new roadway and improving the bridge:

1. The 32nd Avenue Extension corridor from Lower River Road to 78th Street would provide a reliable and direct connection for commuters who work in the industrial areas and freight that needs to move to I-5.
2. The roadway has the potential to catalyze new development of industrial lands north of Mill Plain Boulevard by providing efficient access to regional freight routes and bypassing arterials with high volumes of commuter traffic, such as Fruit Valley Road or Fourth Plain Boulevard.
3. The new roadway will help to preserve livability and safety within westside residential areas by drawing freight and commuter traffic away from arterials and local streets that run through those neighborhoods.
4. The pedestrian and bike facilities constructed with the roadway and bridge can greatly enhance multi-modal safety and accessibility to Vancouver Lake, Frenchman's Bar and the Burnt Bridge Creek Trailhead.

The effects of this major project would be significant and are closely aligned with the goals and community values of the Westside Mobility Strategy.

Figure 19. Components of 32nd Ave. extension project



Retrofit Main Street to Promote Vitality and Safety

Main Street in Vancouver is one of eight key arterials in west Vancouver and is home to more businesses and retail destinations than any other arterial on the west side. Its importance as a transportation facility is matched by its key role in economic development. It is the key street that ties two westside planning efforts – the Vancouver Central City Vision Plan and the pending Upper Main Street Sub Area Plan. It is the commercial spine and civic identity for the City of Vancouver.

Recommendations

4.1 Implement capital projects that would improve pedestrian accessibility in Uptown Village.

- Crosswalk/traffic control at Main Street/25th Street
- Crosswalks/traffic control at Main Street/20th Street

4.2 Coordinate Main Street corridor improvements from 5th to 45th Street to achieve economic development objectives and improve safety and streetscape conditions along the entire corridor.

The coordination would consider Low Impact Development (LID) stormwater facilities, the recommendations of the (pending) TSAP, traffic calming and I-5 diversion issues, accessibility for people who walk and bike, and provide a vital, consistent retail street that complements economic development objectives. The coordination reflects the diverse character of Main Street:

- Downtown (5th to 15th Streets)
- Uptown (15th Street to Fourth Plain Boulevard)
- Upper Main (Fourth Plain Boulevard to I-5)

4.3 Prioritize Main Street capital improvements in downtown.

Main Street in downtown Vancouver—between 5th and 15th Streets needs a complete, high quality and consistent streetscape to perform more effectively as a vital retail street. A complete sidewalk on a downtown retail street should provide space for furnishings, though traffic, sidewalk cafes, and window shopping (Figure 20). A funding strategy needs to be developed to enable these investments in pedestrian safety, streetscape quality and accessibility.

Figure 20. Four zones of a complete downtown sidewalk



- 1 Frontage zone for sidewalk cafes, entrances, storefront shopping, etc.
- 2 Through zone for comfortable and safe walking
- 3 Furnishings zone for seating, lighting, trees, bike parking, etc.
- 4 Buffer zone for parking, bike lanes, stormwater features, etc.

Source: National Association of City Transportation Officials, Urban Street Design Guide

4.4 Implement a Road Diet to manage diversion traffic, operational and safety issues on Upper Main Street

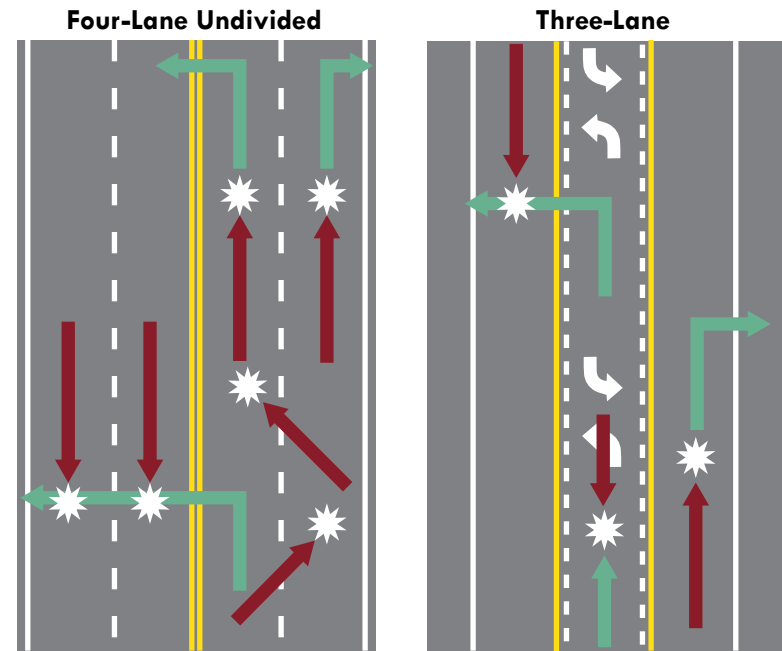
The character of Main Street north of Fourth Plain Boulevard is defined more by vehicular traffic patterns than by its attractiveness to or accommodation of pedestrian foot traffic. The close proximity of I-5 and frequent I-5 diversion traffic volumes overshadow this section of Main Street's ability to become a more neighborhood-oriented multi-modal environment. One proven technique to better and safely manage the traffic and allow for improved pedestrian and bicycle facilities is called a "Road Diet". Benefits of a Road Diet* may include:

- An overall crash reduction of 19 to 47 percent
- Reduction of rear-end and left-turn crashes through the use of a dedicated left-turn lane (Figure 21).
- Fewer lanes for pedestrians to cross and an opportunity to install pedestrian refuge islands
- The opportunity to install bicycle lanes when the cross-section width is reallocated
- Reduced right-angle crashes as side-street motorists must cross only three lanes of traffic instead of four
- Encouraging a more community-focused Complete Streets environment.

Prior to implementation, a traffic study should be conducted to confirm that a Road Diet conversion of four travel lanes to three travel lanes with bicycle lanes will achieve the objectives of mitigating the negative impacts of I-5 diversion traffic, reducing Main Street's higher-than-average collision rate, and improving multi-modal safety and accessibility.

*Source: Federal Highway Administration, *Road Diet Informational Guide*.

Figure 21. Potential collision points, four-lane vs. three-lane configuration



Source: Federal Highway Administration, *Road Diet Informational Guide*.

Complete Key Connections in the Bikeway Network

The westside bikeway network is composed of a combination of dedicated bike lanes and streets designated for shared use with automobiles. Dedicated bike lanes are often discontinuous, widely spaced apart, or not effectively marked to provide safe conditions for people who bike. Streets designated for shared use by bikes and vehicles often facilitate traffic speeds and volumes that are high-stress or uncomfortable for less-confident cyclists or people riding with children, and even for experienced bike commuters

The bikeway network in the downtown area should be interconnected and improved to provide access to a wider variety of destinations. The interconnected facilities will also help people who bike navigate more safely through higher traffic volumes in an area with a history of collisions involving cyclists. However, there are only three streets with bike lanes and each ends without providing a connection to another bike route.

A unique opportunity for a centrally –located north-south bikeway from the Columbia River Discovery Trail to the northern reaches of the westside neighborhoods exists with the close proximity of low-traffic Daniels Street and the excess capacity of Washington Street through the center of downtown. A Daniels-Washington bikeway could include a bike boulevard on Daniels Street from 45th Street to 20th Street and 20th Street to Washington Street. On Washington Street, from 19th to 5th Streets, the excess capacity of three lanes for vehicle traffic could be reconfigured to two lanes for vehicle traffic and one lane for a north-south bike facility, also known as a “cycle track”. A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane (Figure 22). A cycle track is physically separated from motor traffic and is distinct from the sidewalk; it provides a space that is intended to be used

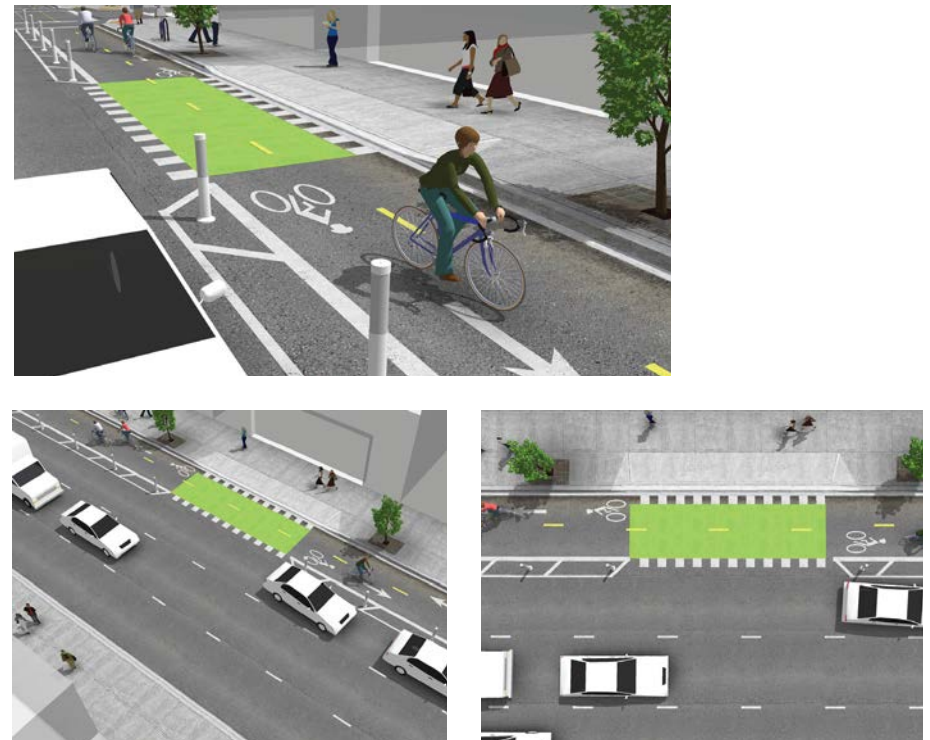
primarily by bicycles and is separated from motor vehicle travel lanes, parking and sidewalks. A cycle track can offer a higher level of security than bike lanes and is attractive to a wider spectrum of the public.*

Recommendations

5.1 Create a Daniels-Washington Bikeway.

Initiate a design study and community engagement process to implement a low-stress north/south pedestrian and bike facility from 45th/Daniels Street to 20th or 21st Street to Washington Street and downtown/waterfront destinations to provide a bike facility for the “Interested but Concerned” transportation cyclists. Existing plans for bike lanes on Columbia St. remain in place.

Figure 22. Cycle track concept



Note: Washington Street would retain on-street parking on both sides of the street.

Source: National Association of City Transportation Officials, Urban Street Design Guide

Figure 23. Proposed bikeway network connections



5.2 Jefferson/Kauffman/Lincoln Corridor.

Initiate the community engagement process for the design and implementation of bike corridor improvements from the Jefferson/Evergreen intersection to Kauffman Avenue/Mill Plain Boulevard intersection and north to Burnt Bridge Creek (BBC) Trailhead on NW Bernie Avenue.

5.3 F Street/C Street Corridor.

Complete targeted intersection improvements to provide safe bike and pedestrian crossings at F Street/Fourth Plain Boulevard and F Street/39th Street. Initiate a study to determine how to better connect the F Street/C Street corridor north to Discovery Middle School and the Burnt Bridge Creek Trail.

5.4 Downtown East-West Corridors.

Complete bike lanes on Evergreen Street and 8th Street between C. Street and Jefferson Street to facilitate safe east-west mobility throughout downtown, to Fort Vancouver, and the waterfront.

5.5 Mill Plain Alternative Bikeways.

Evaluate continuous buffered bike lanes on Mill Plain Boulevard as part of SR-501 Port of Vancouver to I-5 improvements project or alternative parallel routes on 13th Street and 16th Street due to heavy traffic volumes, especially trucks. Study the feasibility of adding bike lanes or designating these streets for shared use and making related improvements.

5.6 Neighborhood East-West and Burnt Bridge Creek Trail Corridors.

To provide more frequent east-west bikeways, complete bike lanes or make improvements to improve safety of streets designated for shared use. These corridors include McLoughlin Blvd., 29th St., 33rd St., and 45th St. All east-west bikeways should span at least between the Lincoln/Kauffman and the F Street/C Street. Improve Burnt Bridge Creek trail crossing of Hazel Dell Ave.

Make Walking Safe and Convenient for All

The historic street pattern of most of Vancouver’s westside—an interconnected grid—makes walking a pleasant and convenient way to get around for many residents. The wide sidewalks and well-furnished streetscapes around Esther Short Park and throughout much of Uptown Village are some of the most enjoyable and safe places to walk in all of Vancouver. Yet, this grid network is interrupted in a number of ways that makes walking more hazardous and inconvenient:

- Pedestrian crossings of arterial streets are too infrequent and widely spaced, which induces people to cross against traffic flow and often without a striped crosswalk or traffic control signal.
- Some signalized crossings of arterial streets may not provide sufficient time for people to cross, especially the mobility-impaired and elderly. Three of the four pedestrian traffic fatalities on the westside between 2010 and 2014 involved an elderly or mobility-impaired person crossing a street, and two of those fatalities were at a striped crosswalk or traffic control signal.
- Signalized crossings sometimes have long wait times for pedestrians in order to move traffic through the intersection, but this can cause pedestrians to cross against traffic flow.
- While sidewalks are available throughout most local streets on the westside, they are inconsistent or generally absent in some neighborhoods. Sidewalks are only on one side of the street or not available throughout the Fruit Valley neighborhood and all of the neighborhoods north of 39th Street. Sidewalks are missing in several areas south of 39th Street, and sometimes affect access to schools, parks and transit stops, common destinations for people who walk, especially more vulnerable populations such as children, elderly or mobility-impaired persons.

- Sidewalks are available on almost all arterial streets, but the experience of walking on those streets is sometimes unpleasant or unsafe due to urban design issues. These include narrow sidewalks with no buffer to heavy traffic or intersection curb radii that are more oriented to providing higher speed vehicle turning movements than safe pedestrian crossings.

Recommendations

6.1 Complete key sidewalk infill connections north of 39th Street.

The sidewalk network north of 39th Street is inadequate to support a safe walking environment. A lack of sidewalks may be acceptable on some local access streets due to low traffic speeds and volumes, but sidewalks are necessary on Lincoln Avenue—a collector arterial—and in specific locations that provide connections to schools, parks, and transit stops.



Lincoln Avenue is the only arterial on the westside without sidewalks

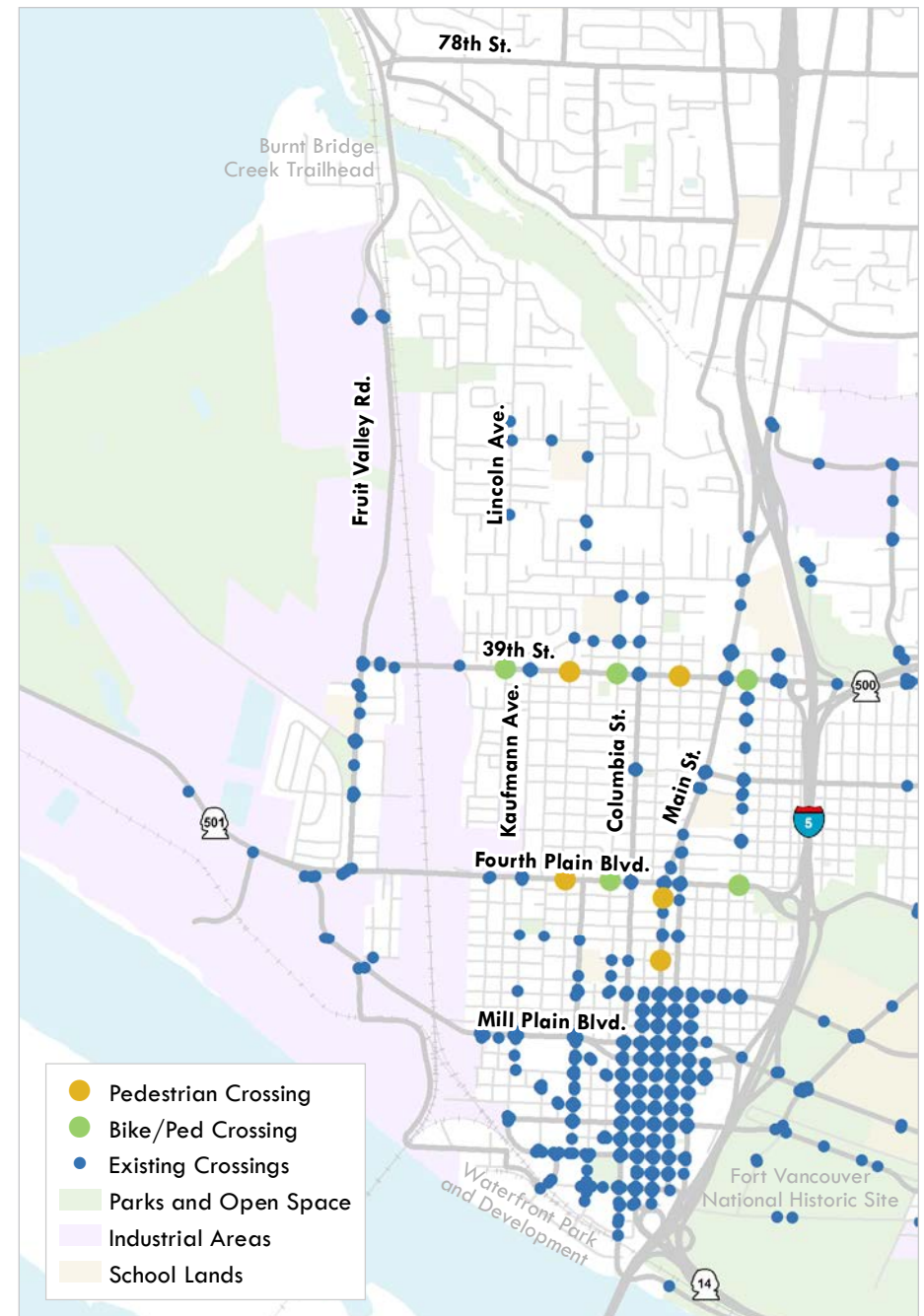
6.2 Enhance pedestrian crossings of westside arterials

Arterial intersections and other crossing locations can present significant barriers between neighborhoods and destinations for people who walk. In addition to safety concerns, pedestrian comfort should also be considered. Where traffic speeds and volumes are higher, such as on arterials, the desired level of pedestrian crossing protection is higher. Enhancing the frequency and safety of crossing locations of arterials is key to achieving more balanced mobility across the westside neighborhoods. The level of enhancements would vary at each crossing but the objective would be the same: to improve the crossing to respond to pedestrian behaviors and demands while guiding people toward the safest possible route. Arterial crossing enhancements will also include improvements for people who bike so that the arterial crossing locations will strategically address network connectivity efficiently and help minimize the potential conflict points between vehicles and non-motorized travelers (Figure 24).

6.3 Modify signal timing across the westside to support pedestrian safety.

In coordination with signal timing adjustments to improve traffic flow on arterial streets, perform an inventory of existing signal timing at all signalized intersections throughout the westside. Apply current best practices of signal timing design for pedestrian safety to identify signals that need to be adjusted to allow for sufficient time to cross or to reduce wait times for pedestrians. Where possible, standardize signal timing to create more consistency and predictability for people who walk. Changes to streets with higher traffic volumes or a history of collisions involving pedestrians should have priority. Identify areas where right-hook collisions between cars and pedestrians occur and provide pedestrian lag time or 'no right turn on red' provisions to protect crossings.

Figure 24. Proposed enhanced pedestrian crossings



6.4 Strategically prioritize future infill of sidewalks and crossings.

In coordination with the Public Works Sidewalk Inventory Project and ahead of the 2017 TSP update, develop criteria for prioritizing where infill of new sidewalks and crossings will occur outside of specific areas identified by this study. The criteria or rating system may give more weight to sidewalks or crossings that improve access to schools, parks, transit stations, low-income housing, assisted living facilities, or other community destinations. Use the prioritized list to inform funding decisions under the City's TIP programs related to pedestrian safety and sidewalk infill. This list may also inform scoping and prioritization of projects that have potential to be eligible for Safe Routes to School funding.

6.5 Evaluate updating and expanding a wayfinding strategy for downtown and neighborhoods west of I-5.

Current signage and visual information for visitors and tourists lack consistency and is outdated. With the development of the new Waterfront Park, the waterfront neighborhood and existing connections to other regional facilities such as Burnt Bridge Creek Trail, Fort Vancouver, Lake Vancouver and Frenchman's Bar, Clark County Government Center, the Port of Vancouver, PeaceHealth Southwest Medical Center, and destinations on Main Street, an updated wayfinding strategy will be necessary and should be compatible with the new My Vancouver smartphone application.

6.6 Improve quality of existing sidewalks and crosswalks.

Some of the westside's sidewalks are the original neighborhood sidewalks built many decades ago. Some sidewalks remain pleasant and walkable; some need to be repaired. Deteriorated sidewalks can impair mobility devices, cause difficulty for pedestrians who are vision-impaired, and become tripping hazards.

Build Partnerships for Regional Projects

The influence of I-5 traffic congestion upon westside neighborhoods and industry is profound. The obvious impacts can be seen with the southbound (SB) diversion traffic entering westside neighborhoods via the I-5 SB Main Street Exit 3. The less obvious impacts include the significant amount of diversion traffic entering the westside neighborhoods via the I-5 SB 78th Street Exit 4 and then SB on Fruit Valley Road; the congestion on north/south local streets in the AM and PM peak-hours; the high collision rates between Main Street and I-5 on 39th Street, Fourth Plain and Mill Plain Boulevards; the difficulty for freight to enter I-5 SB competing with commuter traffic; the daily weekday traffic congestion on 6th Street, Washington Street, and Columbia Street related to the Washington Street I-5 SB on-ramp; higher than average collision rates on Main Street, Mill Plain and Fourth Plain Boulevards, longer freight travel times between I-5 and the Port of Vancouver and freight traffic for longer periods throughout the day (and night) to avoid congestion on I-5. The vehicle and freight related issues contribute to pedestrian and bike circulation and to land use accessibility issues throughout the westside street network.

Addressing the widespread impacts of I-5 congestion across the westside street network will likely not be accomplished with a singular mega-project; it will take many different transportation improvement projects from a variety of funding sources to sustain the efficient functionality of the street network. Partnerships with allied regional and state agencies and collaboration with community members will be key to implementing the right project in the right place at the right time.



I-5 congestion affects the entire westside street network

Recommendations

7.1 Work with regional partners to advance important regional projects.

- Advocate for replacement of the I-5 interstate bridges
- Implement the improvement projects for the Mill Plain Corridor (2017-19) and Mill Plain Interchange (2022-2025)
- Partner with the Port of Vancouver and WSDOT to implement the 32nd Avenue Extension/Fruit Valley Road Bridge Replacement/Lower River Road Improvements project

Monitor Performance of Streets

Over time, improvements to the westside arterial network to accommodate growth in population, employment and industrial land uses occurred one arterial corridor at a time. While this approach may have worked to address neighborhood or freight issues in the past, a more comprehensive and consistent approach to understanding the demands of industrial land uses and residential neighborhoods is necessary for the future. Looking forward, there is a need to more proactively manage the westside grid of interconnected streets to help avoid some of the issues the WMS project uncovered. The performance of both individual arterials and the arterial network needs to be monitored and reported on a more regular basis.

Recommendations

8.1 Develop transportation performance measures and monitoring methodology for the westside of Vancouver.

Performance measures for transportation safety, travel times, speeds, volumes and accessibility for all modes should be developed with a methodology for analysis and development of results reporting that can be shared with neighborhood and industry stakeholders.

8.2 Report progress to the City Council and westside stakeholders every two years.

City staff shall plan for and deliver arterial corridor and network performance reports four months prior to City adoption of the biennial budget to help inform the discussion of transportation priorities.

ACTION PLAN

The following projects represent the WMS recommendations strategically reconfigured as projects that can be implemented over time. The projects vary from capital infrastructure projects to planning and consultant studies where specialized expertise is necessary. Other projects can be integrated into existing City work programs or are already a part of an existing work program.

Project funding

Funding for these projects has not been identified. Funding levels will vary based on citywide priority and funding availability; project timing, priorities and budget cycles will influence project funding strategies. Local funding may be used as a match for competitive grant funding opportunities. Project funding, in collaboration with other agencies, can include a combination of the following revenue sources:

Internal

- City transportation funds
- Transportation capital funds
- Street operating funds

External

- WSDOT dedicated project funding (Mill Plain corridor and I-5/ Mill Plain interchange)
- WSDOT Safe Routes to Schools (SRTS) program grants
- WSDOT Bike Program grants
- WSDOT Transportation Investment Board (TIB) grants
- RTC Surface Transportation Program (STP) grants
- RTC Congestion Mitigation Air Quality (CMAQ) grants
- RTC Transportation Access Program (TAP) grants
- Private foundation grant programs, such as Kaiser-Healthy Eating Active Living (HEAL) grants

Project costs

Project costs were developed by City staff and are based on order-of-magnitude (OM) estimating. An OM estimate is an estimation of a project's level of effort and cost to complete. The project OM estimates are intended to help inform funding and City work program discussions. Current staff levels cannot accommodate additional work program elements without evaluation of Community and Economic Development (CED) and Public Work (PW) staffing resources.

Project priorities

The projects listed will be considered within the context of Citywide needs and as funding sources are available. The scope of work for each project is subject to refinement and change. The projects are organized into three to six year near-term, mid-term and long-term time frames to complement the City's TIP.

Project priorities are detailed in Table 5 at the end of this section.

Short-term implementation opportunities

Eight of the projects listed in the following pages have already been incorporated into City Community and Economic Development and Public Works work programs and/or other circumstances present a unique opportunity for immediate action to begin implementation (Table 4).

Table 4. Short-term implementation opportunities

PROJECT NAME	IMPLEMENTATION OPPORTUNITY
32nd Ave Extension	This project is already on the 6-year TIP list of projects and was halted in 2009. Project funding will need to be identified to continue the project.
Citywide Transportation Safety Assessment (CTSA)	The transportation safety analysis and data from WMS will be incorporated into the 2017 Citywide Transportation Safety Assessment (CTSA) project. The data developed with the CTSA will be a foundational element for the pending update of the 2004 Transportation System Plan (TSP) to be included in the 2017/18 budget request.
Lincoln Ave. Sidewalks	A Safe Routes to Schools (SRTS) grant application was submitted to WSDOT in May 2016 for Lincoln Ave. sidewalks in the vicinity of Franklin Elementary School. Local match funding has been approved pending the success of the grant application.
Upper Main Street Diversion Management and Traffic Safety Project	The section of Main Street from Fourth Plain Boulevard to 39th Street is scheduled for a pavement restoration project in summer 2017, requiring the roadway to be restriped. In the near term, a traffic study to evaluate the impacts of a conversion of four travel lanes to three travel lanes with bicycle lanes to improve safety and manage diversion traffic should be prioritized.

PROJECT NAME	IMPLEMENTATION OPPORTUNITY
Daniels-Washington Bikeway Segment 2	Washington Street, as part of the uptown mixed-use redevelopment project, will be converted from a one-way street to two-way street between McLoughlin and 15th Street in 2017. This will require the road to be restriped and new traffic controls implemented. This same section of roadway is part of the proposed Daniels-Washington Street Bikeway project where a two-way cycle track would be constructed on the east side of Washington Street. The opportunity is to implement a small portion of the Washington Street cycle track from 19th Street to 13th Street, expanding the restriping and traffic control modification project. The cycle-track also achieves the objective of implementing a separated bike facility across Mill Plain Boulevard in the heart of downtown.
39th Street Freight Prohibition	This project, in collaboration with WSDOT, has the support of the City Council and has been incorporated into the 2016 CED/PW work program.
Uptown Main Street Pedestrian Improvements at 25th Street	PW and CED staff have been directed and are currently designing/ engineering a pedestrian crossing at this location due to the high volumes of pedestrians using an un-marked crossing of a high-volume roadway on a daily basis.
Mill Plain Blvd./ SR 501 Corridor Improvements	This WSDOT project, extending from the I-5/Mill Plain interchange to the Port of Vancouver, has full funding for planning, community engagement, design, engineering and construction. Project funding is provided as part of the State of Washington's 2015 Connecting Washington funding package.

Mobility Goal 1: Create a Systematic Plan to Increase Safety

Citywide Transportation Safety Assessment (CTSA)

- Scope of Work
- Collection and analysis of 5-year collision data
 - Assessment of root causes of collisions
 - Identification and prioritization of improvements to prevent collisions
 - Development of programmatic strategies to promote transportation safety
 - Estimated costs for site specific transportation safety improvement recommendations

Estimated Cost \$130 – 150K (Consultant Study)

Mobility Goal 2: Manage Arterials to Preserve Neighborhood Livability

39th Street Freight Prohibition

- Scope of Work
- Initiate a process to prohibit through freight truck traffic on 39th St.
 - Allow local truck access only
 - Coordination with WSDOT and stakeholders
 - 12-18 month timeframe

Estimated Cost Signage costs and coordination with WSDOT

Fourth Plain – Reduce Posted Speed I-5 to Kauffman Avenue

- Scope of Work
- Reduce posted speed from 30 mph to 25 mph from I-5 to Kauffman Ave
 - Replace speed limit signs

Estimated Cost \$5-7K for sign replacement costs

Fourth Plain Nighttime Freight Restriction

- Scope of Work
- Evaluate feasibility of 8 PM to 6 AM time-of-day restrictions for freight on Fourth Plain Blvd. after the 2017-2019 improvements to Mill Plain corridor and 2022-2024 Mill Plain interchange improvements have been implemented

Estimated Cost Signage costs and coordination with WSDOT

Mobility Goal 2: Manage Arterials to Preserve Neighborhood Livability

I-5 SB Ramp to Fourth Plain Blvd. Westbound (WB) Speed Control

- Scope of Work
- Collaborate with WSDOT to evaluate I-5 SB off-ramp/ Fourth Plain Blvd. WB travel lane to achieve the objective of slower vehicle and truck speeds through Fourth Plain Blvd. neighborhoods
 - Evaluate extending two travel lanes, center turn lane and bike lanes from C St. to the Fourth Plain Blvd./I-5 interchange
 - Develop design and construction drawings

Estimated Cost \$5-7K for sign replacement costs

Coordination with Clark County Planning

- Scope of Work
- Coordinate with Clark County transportation planning staff on projects or changes in mobility patterns in the WMS study area, particularly 78th St. corridor, Fruit Valley Rd, NW 45th St., and NE Hazel Dell Ave.

Estimated Cost Included in CED and PW work programs

VPD Traffic Patrols

- Scope of Work
- Advocate for regular VPD traffic patrols on westside arterials

Estimated Cost Included in CED and PW work programs

Westside Traffic Signal Control Strategy

- Scope of Work
- Evaluate signalized intersections throughout the westside to identify intersection signal controls that could be modified to accomplish the following:
 - Update signal head and controls to modern standards; some westside signals and control panels are over 30 years old and cannot be reprogrammed to meet the demands of urban neighborhood traffic control
 - Make time-of-day or day-of-week adjustments to better balance needs for north-south and east-west travel
 - Provide safer crossings for bikes and/or pedestrians on bikeways or streets with high pedestrian volumes
 - Ensure consistency with pedestrian signals for safety, predictability, and to reduce jaywalking
 - Expanded the use of lead pedestrian intervals
 - Make sure that pedestrian crossing times are sufficient for all users, especially elderly or mobility-impaired

Estimated Cost \$5-7K for sign replacement costs

Mobility Goal 2: Manage Arterials to Preserve Neighborhood Livability

Fruit Valley Road Traffic Calming/Traffic Control Improvements

- Scope of Work
- Evaluate the Fruit Valley Rd. corridor and strategically identify traffic-calming and/or traffic control improvements throughout the corridor and including the specific intersections of Fourth Plain Blvd./Fruit Valley Rd., 39th St./Fruit Valley Rd., 61st St./Fruit Valley Rd., and 78th St./Fruit Valley Rd.
 - Fruit Valley Rd. from Fourth Plain Blvd. to 39th St. – develop strategies to achieve the objective of neighborhood-oriented Complete Street
 - Fruit Valley Rd. from 39th St. to 78th St. – develop strategies to achieve the objective of industry-serving Complete Street
 - Evaluate installation of radar feedback sign on Fruit Valley Rd. southbound travel lane 1800 LF north of 39th St. intersection to control traffic speeds approaching curve and freight driveways between the curve and 39th St.

Estimated Cost \$50K (Consultant Study)

Mobility Goal 3: Develop Efficient and Reliable Freight Routes

Restart 32nd Ave. Industrial Access Corridor Extension Environmental Analysis

- Scope of Work
- Re-scope project to include SR-501 improvements from 32nd Ave. to the flushing channel
 - Work with partners to pursue additional funding for corridor planning, design, engineering, and construction
 - Identify 30% engineering level alignment, NEPA-SEPA compliance issues, estimated project costs, project phasing, and potential funding strategies.
 - Working with project partners Port of Vancouver, Clark County, RTC and WSDOT, re-obligate dedicated WSDOT funding for corridor environmental analysis
 - Prioritize replacement of the Fruit Valley Rd. Bridge in conjunction with the 32nd Ave. Extension project; the new bridge should be designed to provide adequate facilities for commuters, freight, pedestrians and bikes
 - 32nd Ave. corridor shall include a separated bike facility connecting the Burnt Bridge Creek trail to the existing separated bike facility on Lower River Rd.
 - Lower River Rd. freight access improvements shall include connecting existing separated bike facility on Lower River Rd. with the existing separated bike facility on Lower River Rd. adjacent to Vancouver Lake

Estimated Cost \$1.5-3M consultant costs. Construction costs TBD.

Mobility Goal 3: Develop Efficient and Reliable Freight Routes

Mill Plain Blvd/SR 501 Corridor Improvements

- Scope of Work
- Collaborate with Port of Vancouver, WSDOT and adjacent neighborhoods to improve Mill Plain Blvd to achieve multi-modal safety, improved east/west freight travel times and improved neighborhood north/south pedestrian and bicycle circulation across Mill Plain Blvd.
 - Work with WSDOT, neighbors and project stakeholders to evaluate bike lanes as part of the Mill Plain roadway through downtown and/or parallel bike facilities on 13th St. and 16th St. between Kauffman Ave. and C St.

Estimated Cost \$6-8M (WSDOT funded project)

Improve Sightlines for Freight

- Scope of Work
- Work with City arborist and adjacent property owners to limb-up street trees where clear sight lines are needed for truck-turning movements such as out of driveways onto arterial roadways.

Estimated Cost Included in Public Works work program. Costs may be shared with property owners.

Fourth Plain Eastbound Traffic Signal Improvements

- Scope of Work
- Evaluate eastbound PM traffic signal progression for Fourth Plain Blvd. traffic signals from Columbia St. through Broadway St.
 - Modify to allow freight progression through signals for PM freight and commuter peak hours

Estimated Cost \$30K (Consultant Study)

Fruit Valley Industry Freight Circulation Improvements

- Scope of Work
- In partnership with the Port of Vancouver, evaluate driveways and local street connections between Mill Plain Blvd., Fourth Plain Blvd. and Fruit Valley Rd. industrial areas to increase efficiency.
 - Collaborate with local industries, Port of Vancouver, WSDOT and adjacent property owners to find efficiencies that would improve freight circulation from industrial land uses to Mill Plain Blvd.

Estimated Cost \$100K (Consultant Study)

Mobility Goal 3: Develop Efficient and Reliable Freight Routes

Adopt Interim Policy on Freight Corridors	
Scope of Work	<ul style="list-style-type: none"> Develop and adopt interim policy to designate City of Vancouver westside freight corridors See Table 5 for proposed freight designations.
Estimated Cost	Add to future year CED/PW work programs.

Table 5. Proposed freight designations for arterial corridors

ARTERIAL CORRIDOR	FREIGHT DESIGNATION
Mill Plain Blvd.	Primary freight corridor
Fourth Plain Blvd.	Secondary freight corridor
39th St.	Local access only (no through freight)
78th St.	Clark County jurisdiction
Main St.	Local access only (no through freight)
Columbia St.	Local access only (no through freight)
Lincoln/Kauffman Aves	Local access only (no through freight)
Jefferson St.	Secondary freight corridor
Fruit Valley Rd.	<ul style="list-style-type: none"> Secondary freight corridor (current) Local Access Only freight corridor (future – after 32nd Ave. is built)
32nd Ave. (future)	Primary Freight Corridor

Mobility Goal 4: Retrofit Main Street to Promote Vitality and Safety

Upper Main St. Diversion Management and Traffic Safety	
Scope of Work	<ul style="list-style-type: none"> Conduct traffic study, design and implement restriping from Fourth Plain Blvd. to 45th St. to improve safety and manage traffic flow; make modifications to traffic controls and traffic-calming; pedestrian, transit and bike accessibility improvements; feasibility of dedicated/protected left-turn lanes Improvements limited to restriping, signage, traffic signals

Estimated Cost	\$150-200K (Consultant Study)
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Uptown Main St Pedestrian Improvements at 25th Street	
Scope of Work	<p>Public Works to design and develop engineering plans and implement the following pedestrian facility improvement projects:</p> <ul style="list-style-type: none"> Main St. crosswalk at 25th St <p>Note: this project currently being designed by Public Works</p>

Estimated Cost	\$110K
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Mobility Goal 4: Retrofit Main Street to Promote Vitality and Safety

Uptown Main St Pedestrian Improvements at 20th St.

- Scope of Work
- Public Works to design and develop engineering plans and implement the following pedestrian facility improvement projects:
 - Main St. crosswalk at East and/or West 20th St.

Estimated Cost \$60-110K per crosswalk.

Main St: 5th St. to 15th St. Capital Improvements

- Scope of Work
- Design, engineering and implementation of multi-modal streetscape safety, accessibility and convenience improvements

Estimated Cost \$12.5-15M

Main St: 15th St. to Fourth Plain Blvd. Capital Improvements

- Scope of Work
- Design, engineering and implementation of multi-modal streetscape safety, accessibility and convenience improvements

Estimated Cost \$TBD

Main St: Fourth Plain Blvd. to 45th St. Capital Improvements

- Scope of Work
- Design, engineering and implementation of multi-modal streetscape safety, accessibility and convenience improvements

Estimated Cost \$TBD

Upper Main St. Corridor Plan

- Scope of Work
- Conduct land use and transportation corridor analysis and improvement plan for Main St from Fourth Plain Blvd. to 45th St. (this subarea study was a recommendation from the 2011 Comprehensive Plan Update)
 - Coordinate corridor transportation safety and streetscape improvements from downtown and uptown through upper Main St.
 - Evaluate corridor land uses to optimize economic development opportunities in coordination with feedback and input from community members and corridor stakeholders
 - Coordinate adjacent neighborhood land-use and economic development objectives
 - Accentuates neighborhood identities of downtown, uptown and upper Main St.
 - Unifies pedestrian safety, accessibility, comfort and convenience throughout the Main St. corridor

Estimated Cost \$150K (Consultant Study)

Mobility Goal 5: Complete Key Connections in the Bikeway Network

Daniels-Washington Bikeway: Segment 1

Scope of Work Conduct community engagement for design and development of a key new neighborhood to downtown to riverfront bikeway connection.

Design and develop engineering plans for the following:

- Sharrows and traffic control adjustments to facilitate Daniels St. neighborhood bike boulevard from 45th St. to 20th St.; 20th St./Daniels St. to 20th St./Washington St.; 20th St./Washington St. to 19th St./Washington St.
- Reconfigure on-street parking as needed with the objective of no net loss of parking spaces
- Additional traffic control and signal equipment and/or signal timing modifications will be required

Estimated Cost \$15-25K (Consultant study for design and implementation costs)

Daniels-Washington Bikeway: Segment 2

Scope of Work *Note:* This project could be strategically combined with the proposed Washington St. Two-Way conversion between McLoughlin and 15th St. to occur in 2017.

Conduct community engagement for design and development for a segment of a key new neighborhood to downtown to riverfront bikeway connection

Design and develop engineering plans for the following:

- Two-way protected bike facility (cycletrack) on the east side of Washington St. from 19th St to 13th St. in conjunction with the pending two-way conversion of Washington St. between McLoughlin and 15th St.
- Reconfigure on-street parking as needed with the objective of no net loss of parking spaces
- Additional traffic control and signal equipment and/or signal timing modifications will be required

Estimated Cost \$30-50K (Consultant study for design and estimated construction costs)

Mobility Goal 5: Complete Key Connections in the Bikeway Network

Daniels-Washington Bikeway: Segment 3

Scope of Work Conduct community engagement for design and development of a key new neighborhood to downtown to riverfront bikeway connection.

Design and develop engineering plans for the following:

- Cycletrack on the east side of Washington St. from 13th to 8th St. Install bike-only signal phase at Washington/8th St. and continue cycletrack on the west side of Washington St. from 8th St. to 5th St. Continue cycle track on north side of 5th St to Columbia St. Install traffic signal with bike-only phase at 5th/Columbia St. Continue cycletrack on west side of Columbia St. Modify sidewalk on Columbia from 5th St to Columbia Way to allow for cycletrack to continue and connect with Discovery Trail adjacent to Columbia River.
- Reconfigure on-street parking as needed with objective of no net loss of parking spaces
- Additional traffic control and signal equipment and/or signal timing modifications will be required

Estimated Cost \$40-50K (Consultant study for design and implementation costs)

Bikeway Network Connection Improvements

Scope of Work Conduct community engagement for design and development of new/improved bike neighborhood bikeway connections

Evaluate, design and develop engineering plans and implement bikeway improvement projects

- Jefferson St./Kauffman Ave./Lincoln Ave corridor to 48th St
- Extend Evergreen St bike lanes to Jefferson St
- Add bike lanes on 8th St. between Grant St and C St
- McLoughlin Blvd from I-5 to Kauffman Ave.
- 29th St from I-5 to Kauffman Ave.
- 33rd St from I-5 to Kauffman Ave.
- 45th St from Main St to Lincoln Ave.
- Connection to Burnt Bridge Creek Trail from F/40th Street intersection
- Burnt Bridge Creek Trail connection across Hazel Dell Ave.

Estimated Cost \$10-20K per corridor (Consultant study for design and estimated construction costs)

Mobility Goal 5: Complete Key Connections in the Bikeway Network

48th to Burnt Bridge Creek Trailhead Bikeway Improvements

- Scope of Work
- Conduct community engagement for design and development of new/improved neighborhood bikeway connection from the intersection of 48th St./Lincoln Ave. to Burnt Bridge Creek Trailhead at intersection of Bernie Rd./Fruit Valley Rd.
- Design and develop engineering plans and implement bikeway improvement projects
- Bernie Rd. uphill bike lanes from Lupin St. to Burnt Bridge Creek Trailhead
 - Sharrows/signage on 48th St. , Cherry St. and Lupin St. and Bernie Rd. (downhill)

Estimated Cost \$55K

Mobility Goal 6: Make Walking Safe and Convenient for All

Arterial Pedestrian/Bike Enhanced Crossing Improvements

- Scope of Work
- Design and develop engineering plans and implement pedestrian/bike arterial crossing improvement projects
- Enhanced crossings package includes pedestrian refuge islands, curb extensions, new/relocated stop bars, pedestrian activated HAWK signal or Rapid Rectangular Flashing Beacon (RRFB)
- Enhanced crossing design will vary based on traffic volumes and risk.
- Locations:
- F St./39th St. pedestrian/bike crossing
 - F St./Fourth Plain Blvd. pedestrian/bike crossing
 - Daniels St./39th St. pedestrian/bike crossing
 - Daniels St./Fourth Plain Blvd. pedestrian/bike crossing
 - Grant St./39th St. pedestrian/bike crossing
 - Franklin St./Fourth Plain Blvd. pedestrian/bike crossing

Estimated Cost (6) enhanced crossings at \$250K each = \$1.5M

Mobility Goal 6: Make Walking Safe and Convenient for All

Lincoln Ave. Sidewalks

- Scope of Work
- Conduct community engagement for design and development of sidewalks on Lincoln Ave.
 - Design and develop engineering plans for implementation of sidewalks
 - Sidewalk implementation

Note: A Safe Routes to Schools Grant application was submitted in May 2016. The grant requested funding assistance for sidewalks on the west side of Lincoln Ave. between 48th St. and 54th St., sidewalks on the south side of NW 53rd St., and a paved path connection behind Franklin Elementary from NW 49th St. to NW 51st St.

Estimated Cost \$7-9M

Fourth Plain Blvd. Sidewalks at Fruit Valley Rd.

- Scope of Work
- Design and develop engineering plans for 385 LF of missing sidewalk on north side of Fourth Plain Blvd. adjacent to the Fourth Plain Blvd./Fruit Valley Rd. intersection
 - Sidewalk implementation

Estimated Cost \$225-250K

Restripe Misaligned Crosswalks

- Scope of Work
- Identify all locations of misaligned crosswalks in Downtown and westside neighborhoods
 - Grind out and restripe street crosswalks misaligned with curb ramps

Estimated Cost Integrate with PW restriping program

Existing Sidewalk Quality Evaluation

- Scope of Work
- Inventory broken and deflected sidewalks on westside arterials and local streets
 - Determine sidewalk repair priorities, consider access to transit, schools, social services, parks and to pedestrian crossing points of east/west arterials

Estimated Cost Integrate with PW pilot study on sidewalk quality

Sidewalk and Crosswalk Infill Prioritization

- Scope of Work
- Develop methodology for westside sidewalk and intersection crosswalk infill prioritization

Estimated Cost Integrate with PW pilot study on sidewalk quality

Mobility Goal 6: Make Walking Safe and Convenient for All

Westside/Downtown Wayfinding Update

- Scope of Work
- Update existing wayfinding signage to include new destinations (such as the Vancouver Public Library) and include regional destinations such as the Clark County Government Center, Burnt Bridge Creek Trail, Vancouver Lake, Frenchman’s Bar, Port of Vancouver, Kiggin’s Theater, etc.
 - Make wayfinding information, city bicycle and trail maps accessible via the My Vancouver smart-phone application.

Estimated Cost TBD

Mobility Goal 7: Build Partnerships for Regional Projects

Advocate for replacing the existing I-5 interstate bridges

- Scope of Work
- City staff will continue to coordinate with local, regional, state and industry partners to advocate for replacement of the I-5 interstate bridges and associated improvements to the I-5 corridor.

Estimated Cost Included in CED and PW work programs

Mobility Goal 8: Monitor Performance of Streets

Transportation Performance Monitoring (TPM)

- Scope of Work
- Note:* The capital infrastructure (fiber-optic network, upgraded traffic signals and central server) required for the City to run a TPM program is already in place.
- Evaluate industry best practices for transportation performance monitoring (TPM) programs and what resources are needed for a successful TPM programs
 - Develop transportation and traffic data collection methodology
 - Develop multi-modal transportation performance measures that would be consistent with pending City of Vancouver Complete Streets policy
 - Develop methodology for analysis and reporting of arterial and arterial network performance

Estimated Cost TBD

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Project priorities and timing

Table 5. Project priorities and timing

PROJECT	ESTIMATED TIMEFRAME		
	SHORT (0-3 YEARS)	MEDIUM (3-6 YEARS)	LONG (6+ YEARS)
Mobility Goal 1: Create a Systematic Plan to Increase Safety			
Citywide Transportation Safety Assessment (CTSA)	■		
Mobility Goal 2: Manage Arterials to Preserve Neighborhood Livability			
Fourth Plain Blvd. – Reduce posted speed 1-5 to Kauffman Ave.	In progress		
39th St. freight prohibition	In progress	■	
Westside traffic signal control strategy		■	
Advocate for VPD traffic patrols	■		
Fruit Valley Rd. traffic calming/traffic control improvements		■	
Coordination with Clark County planning		■	
Fourth Plain Blvd. nighttime freight restriction			■
Mobility Goal 3: Develop Efficient and Reliable Freight Routes			
Mill Plain Blvd./SR 501 corridor improvements	■		
Restart 32nd Ave. industrial access corridor extension environmental analysis		■	
Adopt interim policy on freight corridors	■		
Improve sightlines for freight	■		
Fourth Plain Blvd. EB traffic signal improvements	■		
Fruit Valley Rd. industry freight circulation improvements		■	
Mobility Goal 4: Retrofit Main Street to Promote Vitality and Safety			
Upper Main St. diversion management and traffic safety	■		
Uptown Main St. pedestrian improvements – 25th St.	In progress		
Uptown Main St. pedestrian improvements – 20th St.	■		
Main St., 5th St. to 15th St. capital improvements		■	
Upper Main St. corridor plan		■	
Main St., 15th St. to Fourth Plain Blvd. capital improvements			■
Main St., Fourth Plain Blvd. to 45th St. capital improvements			■

Table 5. Project priorities and timing (continued)

PROJECT	ESTIMATED TIMEFRAME		
	SHORT (0-3 YEARS)	MEDIUM (3-6 YEARS)	LONG (6+ YEARS)
Mobility Goal 5: Complete Key Connections in the Bikeway Network			
Daniels-Washington Bikeway: Segment 1		■	
Daniels-Washington Bikeway: Segment 2	■		
Daniels-Washington Bikeway: Segment 3		■	
Bikeway network connections improvements	■		
48th St. to Burnt Bridge Creek Trailhead bikeway improvements	■		
Mobility Goal 6: Making Walking Safe and Convenient for All			
Arterial pedestrian/bike enhanced crossing improvements		■	
Lincoln Ave. sidewalks	■		
Fourth Plain Blvd. sidewalk at Fruit Valley Rd.	■		
Restripe misaligned crosswalks	■		
Existing sidewalks quality evaluation	■		
Sidewalk/crosswalk infill prioritization	■		
Westside/downtown wayfinding update		■	
Mobility Goal 7: Build Partnerships for Regional Projects			
Advocate for replacing the existing I-5 interstate bridges	■		
Mobility Goal 8: Monitor Performance of Streets			
Transportation performance and monitoring	■		